COMMONWEALTH BUREAU OF ANIMAL HEALTH

THE

VETERINARY BULLETIN

Vol. 24] September, 1954 [No. 9

DISEASES CAUSED BY BACTERIA AND FUNGI

PISU, I. (1951). Sui metodi di identificazione degli stafilococchi patogeni e degli stafilococchi enterotossici. I. Rassegna bibliografica e critica. **[Identification of pathogenic and enterotoxic staphylococci. I. A critical review.]**—*Boll. Ist. sieroter. Milano.* **30,** 310-335. **3000**

A survey of the value of methods in use. P. gave details of the technique to be followed for the haemolysin test. Mouse inoculation is the best test of pathogenicity and of the activity of α and β toxins. Coagulase and other tests are of value only as subsidiary tests.

—I. MARTINI.

SMITH, H. WILLIAMS. (1954). **The pathogenicity and haemolytic properties of staphylococci isolated from chickens.**—*J. Path. Bact.* **67,** 73-80. [Author's summary slightly modified.] **3001**

Fourteen of fifteen epidemiologically-unrelated strains of coagulase-positive staphylococci isolated from pathological lesions in chickens failed to produce α-haemolysin; the remaining strain produced a small amount. Experimentally, they were lethal for chickens and rabbits but only one was lethal for mice.

Rabbits were susceptible to experimental infection with coagulase-positive strains of staphylococci whether they were α-, β-, or non-haemolytic; generally speaking, mice were susceptible to α-haemolytic strains only.

All the coagulase-positive strains examined fermented mannitol, liquefied gelatin and formed phosphatase. None produced leucocidin and only two strains, both of human origin, produced opacity in egg yolk. Lethal toxin and dermotoxin were formed only by strains that produced α-haemolysin.

The author confirmed the reliability of the coagulase test for identifying pathogenic strains of staphylococci. The correlation between α-haemolysin production and pathogenicity was very incomplete.

SMITH, H. WILLIAMS. (1954). **Experimental staphylococcal infection in chickens.** — *J. Path. Bact.* **67,** 81-87. [Author's summary slightly modified.] **3002**

By means of i/v but not i/p or s/c injection, a disease was produced in chickens, 8 weeks old, which was very suitable for the study of staphylococcal infection. It closely resembled the severe form of the disease that occurs naturally in poultry. Vaccination by the s/c injection of live culture did not prevent chickens from developing the disease when challenged, but it did reduce the mortality rate. The disease was satisfactorily treated with penicillin, streptomycin, aureomycin and terramycin, but not chloramphenicol.

MADDY, K. T. (1953). **Studies and observations on bovine mastitis. I. Incidence of mastitis.** —*Iowa St. Coll. Vet.* **15,** 135-140. **3003**

When *Str. agalactiae* has been eliminated from a herd by treatment or disposal of infected animals, mastitis caused by other organisms, *e.g. Staph. aureus* or *Bact. coli,* is found to become a problem. S. suggested that possibly *Str. agalactiae* should be considered as " normal udder flora " as it is found nowhere else in nature except rarely as a chance inhabitant of local infections; and that therefore it might be better not to attempt to eliminate it by treatment and disposal of infected animals, but by careful maintenance of the herd to prevent predisposing causes of mastitis and thus keep infection at a low level.

He suggested that a new approach to the problem of mastitis might be of value, *e.g.* the injection of attenuated organisms into the udder of healthy animals to establish a bacterial flora which might prevent the establishment of more harmful organisms.—F.E.W.

KRÜGER, W. (1954). Zur Frage der Bedeutung der Inhibition (nach Dold) bei der Abwehr von Euterentzündungserregern beim Rind.

[Relationship between resistance to mastitis and to presence in the milk of substances which inhibit bacteria.] — *Dtsch. tierärztl. Wschr.* **61,** 97-100. **3004**

Using a strain of *Str. agalactiae,* K. compared the inhibitory activity of two milk samples from cows with a history of marked susceptibility to streptococcal mastitis, and of two samples from cows which had never been infected and were presumed to be resistant. He could find no relationship between susceptibility to infection and the inhibitory activity of the milk samples *in vitro*.—A.S.

BRATLIE, O. (1954). **Bovine mastitis. Report No. 6 on the experimental dairy herd at Hellerud.** — *Nord. VetMed.* **6,** 47-68. [In English. German and Norwegian summaries.] **3005**

A report on material from frequent bacteriological examinations of a herd of about 47 cows in the course of 5 years. There was an intermittent shedding of bacteria from infected quarters.—R. B. HOLCOMBE.

EISLER, D. M. & ECKER, E. E. (1950). **Phagocytosis during bacteremia in mice : a preliminary report.**—*Science.* **112,** 9-11. **3006**

This report is " an attempt to compare the phagocytic functions of the phagocytes in the peripheral blood and those of the fixed tissues " using *Micrococcus candidus* as the test organism. Non-immunized mice and mice immunized by repeated i/v injections of the test organism were used. Following the injection of a suspension of *M. candidus,* blood samples were taken at frequent intervals and total leucocyte and differential counts and number of cocci ingested per neutrophile determined. The effect of NaCl, $MgCl_2$ and gelatin on phagocytosis both *in vitro* and *in vivo* was also reported.

Following the bacteraemia large numbers of cocci were trapped in the lungs, where phagocytosis by mononuclear leucocytes was observed. Histological examination revealed the presence of a greater number of leucocytes in the lungs, and a greater number of cocci in the axillary lymph nodes, of immunized mice than of non-immunized controls.—J. E. LANCASTER.

NOVEL, E. & PONGRATZ, E. (1952). Longévité des spores de diverses espèces bactériennes et notamment celles de *Bacillus anthracis.* **[Longevity of bacterial spores, particularly those of *B. anthracis.*]** — *Schweiz. Z. allg. Path.* **15,** 545-547. [In French. English and German summaries. English summary slightly modified.] **3007**

Spores of *B. anthracis, B. subtilis* and *Glycobacter peptolyticum,* which had been dried on filter paper or cotton threads and stored for 50, 43 and 37 years respectively, were found to be still viable. The anthrax spores were moreover still virulent.

Another anthrax strain which had been isolated from an infected horse in 1897 and kept in a sealed vial at room temperature and in the dark, was also viable and virulent.

PROKŮPEK, K. (1952). Vliv vyhnívání koželužských kalů na životnost a virulenci zárodků sněti slezinné. **[The influence of fermentation of tannery sludge on viability and virulence of *Bacillus anthracis.*]**—*Spisy Vysoké Školy Vet., Brno.* **20,** No. 186. pp. 1-30. [English and Russian summaries.] **3008**

Undyed cotton fibres, soaked in a suspension of anthrax spores, were immersed in fresh tannery sludge which had been neutralized with phosphoric acid. The inoculated sludge was then incubated at 26°C. Even after 3 months the spores were viable and capable of germination. The virulence was sometimes unaffected, but sometimes modified: the spores did not cause a septicaemia in mice, but killed g. pigs within 10–12 hours.—A. MAYR-HARTING.

MAZZUCCHI, M. (1953). Ulteriori ricerche sperimentali in tema di carbonchio e di vaccinazione anticarbonchiosa. **[Viability and antigenicity of *B. anthracis* spores suspended in saponin.]** — *Clin. vet., Milano.* **76,** 210-216. **3009**

Anthrax spores kept in suspension in saponin solution at room temp. were found to have retained their virulence and antigenic powers after 25 years. This lapse of time is not regarded as the maximum.

—I. W. JENNINGS.

WRIGHT, G. G., HEDBERG, M. A. & SLEIN, J. B. (1954). **Studies on immunity in anthrax. III. Elaboration of protective antigen in a chemically-defined, non-protein medium.**—*J. Immunol.* **72,** 263-269. [Authors' summary modified. For previous parts, see *V.B.* **21,** 3448 & **22,** 306.] **3010**

Elaboration of the protective antigen of *B. anthracis* was obtained in a chemically-defined, non-protein medium composed of 17 amino acids, inorganic salts, adenine, guanine, uracil, thiamine, glutamine, glucose, and sodium bicarbonate. Sterile filtrates of static 20-hour cultures of a non-proteolytic mutant strain of *B. anthracis,* when injected in divided doses totalling 1 ml., were capable of immunizing rabbits so that they survived intracutaneous challenge with 10,000 spores of virulent *B. anthracis,* representing at least 100 lethal doses.

The preparations immunized g. pigs against a challenge of 1000 spores and, when precipitated with alum, produced detectable immunity in mice. A preliminary experiment indicated that the antigen also produced effective immunity in monkeys. Tentative indications as to some of the critical constituents and cultural conditions for production of antigen were obtained. Protective antigen activity of the crude filtrate was relatively unstable; the protective antigen could, however, be concentrated and stabilized by lyophilization or by alum precipitation. The authors discussed the significance of these findings.

CHAPMAN, G. B. & HILLIER, J. (1953). **Electron microscopy of ultra-thin sections of bacteria. I. Cellular division in** *Bacillus cereus*.—*J. Bact.* **66,** 362-373. **3011**

Examination under the electron microscope of thin sections of *B. cereus* organisms, prepared after the organisms had been embedded in methacrylate, by a process described by the authors, revealed peripheral bodies which migrated centrally with the annular cell wall as it formed. The cell wall then thickened and split. No cytoplasmic membrane was seen and although the nuclear apparatus was demonstrable, no mitotic figures or chromosomes could be identified.—A. SEAMAN.

MORNET, P. (1952). La tuberculose animale en Afrique Occidentale française. **[TB. in animals in French West Africa.]**—*Bull. Serv. Élev. Industr. anim. A.O.F.* **5,** 7-23. **3012**

M. drew attention to a steady increase in the incidence of TB. in cattle in French West Africa, up to 13% of carcasses of the Macina breed (Sudan) having been found to be infected in 1951.—J.D.

QUANDER, J., LAUTERBACH, D & HÜBNER, K. (1953). Bekämpfung der Rindertuberkulose in den Niederlanden. (Teilbericht über eine Informationsreise nach den Niederlanden zum Studium der Bekämpfung der Rindertuberkulose und der Abortus-Bang-Infektion.) **[Control of TB. in cattle in the Netherlands.]** —*Rindertuberkulose.* **2,** 95-106. **3013**

A general account of the methods of controlling TB. in the Netherlands, made after a 3-month study tour.—R. B. HOLCOMBE.

GOERTTLER, V. & WEBER, E. (1954). Bovine Tuberkulose als Ursache humaner Tuberkulose. Zusammengestellt aus dem internationalen Schrifttum bis 1952. I. **[TB. in cattle as a cause of TB. in human beings.]**—*Die Rindertuberkulose.* **3,** 29-52 & 54-78. **3014**

A review of the international literature up to, and including, 1952, with a 6-page bibliography.—W. R. BETT.

COMBÉ, E. (1953). Untersuchungen über das Vorkommen von Tuberkelbakterien in den Dotterkugeln der Eierstöcke tuberkulöser Hühner. **[Incidence of tubercle bacilli in the yolk follicles of tuberculous fowls.]**—*Inaug. Diss., Munich.* pp. 23. **3015**

Tubercle bacilli were isolated from the active ovaries of 45 tuberculous hens. There is danger of infection to man if eggs from such hens are consumed without being cooked sufficiently.—W. G. SILLER.

CUVIER, G. (1954). La tuberculose extra-pulmonaire d'origine bovine en Grande-Bretagne. **[Extra-pulmonary TB. of bovine origin in human beings in Gt. Britain.]**—*Pr. méd.* **62,** 63. **3016**

C. commented on the conclusions reached by Wilson, G. S. *et al.* [see *V.B.* **23,** 1102]. —W. R. BETT.

BUSS, W. (1954). Hauttuberkulose des Pferdes als Ursache menschlicher Hauttuberkulose. **[Cutaneous TB. in man contracted from a horse with cutaneous TB.]**—*Tierärztl. Umsch.* **9,** 164. **3017**

A long-standing lesion of a farmer's finger was diagnosed by biopsy as TB. Livestock on his farm was examined, and a chronic ulcerative skin lesion of the left hind fetlock of a horse was found. Material from this lesion reproduced TB. when inoculated into 2 g. pigs and a rabbit.—R.M.

GRÜN, H. & KLINNER, W. (1952). Die experimentelle Tuberkulose der weissen Maus. **[Experimental TB. in white mice.]** — *Virchows Arch.* **322,** 311-335. **3018**

Intravenous injection into white mice of 0·5 mg. of a pure culture of bovine type tubercle bacilli (Strain Tb 8 B) kills within a few weeks. The lungs contain bacterial emboli. The bacteria are phagocytosed by, and further multiply in, macrophages of connective tissue and alveolar epithelium. A similar process occurs in the Kupffer cells of the liver.—W. R. BETT.

CHUTE, R. N., KENTON, H. B. & SOMMERS, S. C. (1954). **A laboratory epidemic of human-type tuberculosis in hamsters.**—*Amer. J. clin. Path.* **24,** 223-226. [Authors' summary modified.] **3019**

An account of an accidentally induced laboratory epidemic of infection with human-type tubercle bacilli in hamsters which followed the inoculation of tuberculous human prostatic

tissue into the hamster cheek pouch. The disease was believed to have been spread by contaminated instruments in further cheek-pouch implantation studies. Amyloidosis was a common and at times fatal complication of TB. in the hamsters.

JENSEN, K. E. (1954). **Presence and destruction of tubercle bacilli in sewage.**—*Bull. World Hlth. Org.* **10,** 171-179. [In English. French summary. Author's summary modified.] **3020**

J. examined, for the presence of tubercle bacilli, the sewage from 5 towns with TB. sanatoria and from one institution for the care of the feeble-minded, which had a TB. ward. The 6 effluents were treated in biological-purification plants and average samples taken. These were centrifuged, and the sediment treated for an hour at 37°C. with 4% NaOH before inoculation into g. pigs. Tubercle bacilli were demonstrated in the influent to all the plants and in the digested sludge of all plants operating on sewage where the ratio of infective patients to all persons connected with the plant was up to 1:600. Experiments with cultivated tubercle bacilli showed that centrifuging of sewage resulted in only an insignificant destruction of bacilli, but that NaOH treatment caused the destruction of over 99%.

After consideration of the risk of infection to both human beings and cattle from the sewage of TB. institutions, J. reported on his own studies on the killing of tubercle bacilli in sewage. It took about 11½–15 months before tubercle bacilli could no longer be demonstrated in sludge that had been kept on the drying beds. The addition of 10 mg. of chlorine per l. of biologically purified effluent from an activated-sludge plant was found effectively to destroy tubercle bacilli. Disinfection of sludge was also carried out efficiently with 0·5% lysol and 0·1–0·2% formol; 3·1% copper sulphate proved ineffective. He concluded that the disinfection of sewage from TB. institutions presents no special difficulties, but that work on this subject in different countries should be co-ordinated in an effort to improve plant and reduce costs.

BUDDECKE, E. (1953). Die Lipoide des Tuberkelbacillus und ihre Bedeutung für therapeutische Möglichkeiten. **[Therapeutic possibilities of the lipoids of the tubercle bacillus.]**—*Z. Hyg. InfektKr.* **137,** 247-267. **3021**

A discussion on the literature, with some 60 references. B. discussed the biochemistry of the lipoids of the tubercle bacillus; the possibilities of disturbing the lipoid metabolism of the organism by suitable therapy; therapy with fatty acids and other lipoids; the possibilities of therapy with lipolytic enzymes, (a) from polycellular organisms, (b) from bacteria, (c) of plant origin. Further systematic work on the chemistry of the tubercle bacillus, especially on its various enzymes and their mode of interaction is necessary.—F.E.W.

BEKIERKUNST, A. & SZULGA, T. (1954). **A new method for determining the growth rate of *M. tuberculosis* and its application to the study of the toxic effects of streptomycin and *iso*-nicotinic hydrazide acid on tubercle bacilli.** — *Schweiz. Z. allg. Path.* **17,** 47-72. [In English. French and German summaries. Abst. from authors' summary.] **3022**

Using a method for determining the generation time of tubercle bacilli, the authors studied the toxic effects of streptomycin and *iso*-nicotinic acid hydrazide on the organisms. The time required for the bacilli to recover from the toxic effects of these drugs and resume multiplication was found to increase in relation to the concentration of the drug and the duration of previous exposure to it. They discussed the significance of this recovery period as a theoretical basis for an adequate intermittent treatment.

CAPON, A. W. (1952). **ACTH, cortisone and tuberculosis.**—*Canad. med. Ass. J.* **67,** 46-48. **3023**

An account of two cases of TB. in human beings in which it was possible that the illness was precipitated by the administration of cortisone for the treatment of disease other than TB. C. discussed the literature on the effects of A.C.T.H. and cortisone in individuals with TB.—R. GWATKIN.

PETERSON, A. & POPE, H. (1952). **A comparison of the synthesis of vitamins and amino acids by *Mycobacterium tuberculosis* and its streptomycin resistant variant.**—*J. Bact.* **64,** 25-28. **3024**

Variations occurred in the synthesizing powers of the H37Rv strain and its streptomycin-resistant mutant. Changes were more pronounced in amino-acid synthesis than in the synthesis of vitamins of the B-complex.

—G. V. LAUGIER.

GERNEZ-RIEUX, CH. & TACQUET, A. (1951). Le phénomène de l'hémolyse conditionnée dans la tuberculose. **[The haemolytic test in TB.]** —*Ann. Inst. Pasteur.* **81,** 149-157. **3025**

Red blood corpuscles of sheep, sensitized by tuberculin, are haemolysed in the presence of fresh g. pig complement by inactivated serum from animals infected experimentally with

tubercle bacilli, or from tuberculous patients. The polysaccharide fraction of tuberculin appears to be the active antigen in this reaction.

—W. R. Bett.

Heplar, J. Q., Clifton, C. E., Raffel, S. & Futrelle, C. M. (1954). **Virulence of the tubercle bacillus. I. Effect of oxygen tension upon respiration of virulent and avirulent bacilli.**—*J. infect. Dis.* **94,** 90-98. [Authors' conclusions modified.] **3026**

Guy, L. R., Raffel, S. & Clifton, C. E. (1954). **Virulence of the tubercle bacillus. II. Effect of oxygen tension upon growth of virulent and avirulent bacilli.** — *Ibid.* 99-106. [Authors' conclusions modified.] **3027**

I. The evidence presented in this study suggests that avirulent strains of the tubercle bacillus generally respire in air at a more rapid rate than do their counterpart virulent strains of the same culture age adjusted to the same suspension turbidity. This relationship is maintained at 1% oxygen tension but, in addition, respiration of the avirulent strains tends to be inhibited to a greater extent than that of the virulent strains. In many instances this difference in extent of inhibition is quite marked and appears to be independent of the nature of the suspending medium. Such a differential inhibition of respiration at reduced oxygen tensions might lead to a decreased rate of growth of avirulent strains *in vitro* and might possibly, in part at least, account for their failure to multiply in the tissues of a host in which a virulent strain can multiply.

II. Fifteen strains of virulent, attenuated and avirulent tubercle bacilli of human and bovine types on Dubos-Davis medium were subjected in an open system to atmospheres containing 1% oxygen with or without 7·5% carbon dioxide. As compared directly with identical cultures cultivated in air, all strains were inhibited in their growth, but multiplication of the avirulent organisms was more markedly suppressed than that of the virulent strains.

The conc. of CO_2 exerted little influence upon the course of growth in any of these instances studied. Growth of all strains tended to be suppressed more at a lower (0·30%) than a higher (7·5%) conc. of CO_2 in the atmosphere of incubation.

The B.C.G. strain displayed the behaviour of virulent rather than of avirulent organisms under low oxygen tension. This behaviour coincides with other activities of this strain.

It therefore seems probable that a major factor determining the virulence of the tubercle bacillus may be its ability to proliferate in an environment deficient in oxygen. The avirulent organism, in contrast, is much less able to utilize low concentrations of oxygen for its multiplication.

Roth, W. (1949). Morphologische Studien an Mikrokulturen über die "cord-formation" von Mycobakterien. [**"Cord formation" in mycobacterial cultures.**]—*Schweiz. Z. Path. Bakt.* **12,** 451-458. **3028**

All the strains examined, which included human, bovine and avian types of *M. tuberculosis* and also mycobacteria from cold-blooded animals, and *M. phlei*, multiplied by simple division, a few also by branching. Typical "cord-formation" was clearly demonstrable in all cultures of virulent human and bovine type strains, except in liquid media where it occurred less regularly; it was never demonstrable in cultures of the avian type, nor in those from cold-blooded animals, nor in *M. phlei*. R. failed to confirm the findings recorded by Bloch [*V.B.* **19,** 398], *viz.*, cord-formation by avirulent strains following the addition of chick embryo extract to the medium, as the organisms failed to grow further. The addition of Tween 80 (a surface-active agent) inhibited cord-formation. Photomicrographs were reproduced showing the cord-formation at different stages.

—W. R. Bett.

Herrmann, W. (1949). Beiträge zur Tuberkelbakterienkultur. I. Erfahrungen mit der Tuberkelbakterienkultur nach Hohn während 20 Jahren (1927-1947). II. Die Kultivierung von Tuberkelbakterien mittels flüssiger, modifizierter Kirchner-Substrate. [**Cultivation of of tubercle bacilli. I. Experiences with the method described by Hohn during 1927-47. II. Cultivation on modified liquid media described by Kirchner.**]—*Z. Hyg. InfektKr.* **129,** 103-108 & 146-155. **3029**

I. The use of one medium only, even Hohn's valuable medium 4, is insufficient for routine bacteriological diagnosis, especially for bovine type strains. H. suggested a modification of Kirchner's liquid media.

II. H. recommended liquid media 30 and 30a without egg for cultivation of tubercle bacilli. Kirchner's medium "Syser" in routine use was occasionally found disappointing because of impurities and also on account of insufficient buffering. Addition of malachite green 1 : 50,000 and increase in buffer substances etc. produce media 30 and 30a, which are satisfactory. With the use of agar, medium 30 can be converted into an egg-free solid medium

which is as suitable for further cultivation of tubercle bacilli (but not for first cultivation) as is Hohn's egg medium 4.—W. R. Bett.

Meyn, A. (1950). Die Tiefenkultur des Tuberkuloseerregers und ihre diagnostische Bedeutung. **[The role of deep culture of *Mycobacterium tuberculosis* in diagnosis.]**—*Z. Hyg. InfektKr.* **131,** 472-481. **3030**

Deep culture in media 30 and 30a described by Herrmann [see preceding abst.] of milk samples and material from the lesions in various tissues and organs of tuberculous cattle yielded diagnostic results within 2 weeks, as compared with 4–6 weeks using surface culture on Petragnani medium. M. stated that deep culture technique is simple and useful for all types of tubercle bacilli; especially for material poor in organisms.—W. R. Bett.

Waksman, B. H. (1953). **Studies of cellular lysis in tuberculin sensitivity.** — *Amer. Rev. Tuberc.* **68,** 746-759. [French and Spanish summaries.] **3031**

Tuberculin inhibits tissue cultures from tuberculous rabbits or g. pigs. This reaction, unlike the lympholysis phenomenon (lysis of circulating leucocytes by tuberculin), is independent of complement but correlated with skin reactivity.—J. E. Smith.

Seibert, F. B. & Fabrizio, A. M. (1952). **The isolation and chemistry of a protein fraction of *M. tuberculosis* and its ability to sensitize cells.** — *Amer. Rev. Tuberc.* **66,** 314-334. [French and Spanish summaries.] **3032**

The authors described the properties of a protein fraction obtained by adding solid urea to cultures of the tubercle bacillus. The protein was similar in its chemical, immunological, and electrophoretic properties to protein C isolated from tuberculin filtrates [*V.B.* **20,** 30].

The protein fraction was more capable of producing a skin reaction in tuberculous animals, and gave rise to more severe Arthus reactions than protein C; in the latter respect it more closely resembled protein A.—R.M.

Cohen, S. G. & Mokychic, W. E. (1954). **The effect of leukopenia (by nitrogen mustard) and reticulo-endothelial blockade (by thorium dioxide) on tuberculin cutaneous sensitivity.**—*J. infect. Dis.* **94,** 39-46. [Abst. from authors' summary.] **3033**

Thirty-five albino rabbits rendered tuberculin sensitive by intradermal inoculation with B.C.G. vaccine were tested intracutaneously with O.T. at weekly intervals thereafter for 8 weeks.

In 10 which received no additional treatment there was a subsequent and gradual development of slight diminution in intensity and size of the positive cutaneous reacting sites.

In 15 which were injected i/v with nitrogen mustard, 1 mg./kg. body wt. every 4 days during the period of tuberculin testing, there was a marked diminution in size and intensity of the tuberculin skin reaction by the 14th to 21st day of the induced leucopenia; in the 10 that survived, tuberculin cutaneous sensitivity remained diminished despite a return to normal hematological values.

In 10 others injected i/v with thorium dioxide, 2·5 ml./kg., there was either no change or a slight diminution in size of the tuberculin skin test site, but a slight to moderate increase in the degree of intensity of the cutaneous reaction was noted.

The authors discussed the possible significance of these findings.

Baisden, L. A., Larsen, A., Johnson, H. W. & Vardaman, T. H. (1952). **The influence of aging on the potency of mammalian intradermal tuberculins.**—*Amer. J. vet. Res.* **13,** 62-66. [Abst. from authors' summary.] **3034**

The authors compared the potencies of the Bureau of Animal Industry (BAI) mammalian intradermal tuberculins (or pools of those tuberculins) of various ages, up to 17 years, with the potencies of BAI tuberculins about one year old, on cattle artificially sensitized to various types of heat-killed, acid-fast microorganisms. They gave data which indicated a decrease of potency on aging of the tuberculins when they were stored at the strength as used for intradermal tests (1 : 4 OT) under laboratory or field conditions.

Cohen, C. (1954). **Stimulatory effect of BCG on isoantibody production in the rabbit.**—*Proc. Soc. exp. Bio., N.Y.* **85,** 375-377. [Author's summary modified.] **3035**

Iso-antibody production in the rabbit is greatly enhanced by pretreatment of the recipients with an i/d injection of B.C.G. Of 46 animals given such pretreatment 26 produced isohaemagglutinin when stimulated with donor r.b.c., as compared with 3 out of 27 in which the pretreatment was omitted. Antisera to 7 different antigens in the rabbit were prepared by the use of BCG pretreatment.

Haas, R. (1953). Zur Beurteilung flüssiger BCG-Impfstoffe. **[Evaluation of liquid B.C.G. vaccine.]** — *Z. Hyg. InfektKr.* **136,** 124-132. **3036**

Oxygen absorption in liquid B.C.G. vaccine was measured in various conditions. It was

unfavourably influenced by the mechanical processes involved in the preparation of the vaccine, and by storage. There was simultaneous reduction in the number of organisms capable of multiplication.—W. R. Bett.

Haas, R. (1953). Über die Sauerstoffaufnahme flüssiger und lyophilisierter BCG-Kulturen. [**Oxygen absorption by liquid and lyophilized B.C.G. cultures.**]—*Z. Hyg. InfektKr.* **136,** 275-279. **3037**

In the presence of lactase and of human serum liquid cultures of B.C.G. kept in a refrigerator show total reduction of oxygen absorption within 4 months. Lyophilization exerts a stabilizing influence on the respiration of the organisms.—W. R. Bett.

Grabar, P., Boyden, S., Taquet, A. & Borduas, A. (1952). Mise en évidence de deux anticorps différents dans les sérums tuberculeux par hémagglutination passive. [**Demonstration of two different antibodies in rabbit serum and in serum from tuberculous patients, by haemagglutination.**] — *C. R. Acad. Sci., Paris.* **234,** 899-901. **3038**

When haemagglutination with normal sheep r.b.c. is used, antipolyoside antibodies react; when tanned haemolysed r.b.c. are used, antiprotein antibodies react.—W. R. Bett.

Lämmler, G. (1953). Die fluoreszenzmikroskopische Diagnose der Tuberkulose unter besonderer Berücksichtigung der saprophytären Mykobakterien der Milch. [**Differentiation between *Mycobacterium tuberculosis* and saprophytic mycobacteria in milk by fluorescence microscopy.**] — *Dtsch. tierärztl. Wschr.* **60,** 389-393. **3039**

L. claimed to be able to differentiate, on morphological grounds, between tubercle bacilli, *M. phlei* and *M. lacticola.* He gave details of the method of staining which gave the best result. The first examination of the preparation is done with the dry lens to obtain a larger field of vision. Fluorescent organisms found are then examined with the oil immersion lens.
—A. Mayr-Harting.

Cabeza, F. W. & Alvarez, E. (1954). "Tratamiento de la linfangitis ulcerosa de los équidos, mediante el empleo de autovacunas atenuadas con penicilina." [**Treatment of ulcerative lymphangitis with autogenous vaccines attenuated by penicillin.**]—*Rev. Vet. milit., B. Aires.* **2,** No. 4. pp. 21-29. [English summary.] **3040**

The authors described the use and preparation of autogenous vaccine against ulcerative lymphangitis (*Corynebacterium ovis* infection) from material from lesions of affected horses, and its attenuation by the addition of penicillin.
—R.M.

Boller, H. (1954). Über die Behandlung von Pyogenes-Endometritiden beim Rind mit Streptomycin. [**Streptomycin treatment of metritis in cows caused by *Corynebacterium pyogenes.***] — *Schweiz. Arch. Tierheilk.* **96,** 169-181. [English, French and Italian summaries.] **3041**

B. treated 16 cases of purulent metritis in cows by introducing into the uterus 2 g. dihydrostreptomycin in 1% aqueous soln. The treatment was repeated after a week, if necessary. In each case corynebacteria were present in stained smears of uterine discharge collected before treatment. Fourteen of the cows recovered and 9 of them subsequently became pregnant.
—R.M.

Delpy, L.-P. (1954). Standardisation de la malléine à l'Institut d'Hessarek (Iran). [**Standardization of mallein at the Hessarek Institute, Iran.**]—*Arch. Inst. Hessarek.* No. 8. pp. 36-39. **3042**

The mallein, prepared by concentration of a filtrate of a broth culture, is standardized by the intradermo-palpebral injection of 0·25 ml. of a 1 : 10 dilution of the test material into one eye and a similar dose of the standard into the other eye, of three groups of horses, one of proven cases, one doubtful and one negative. The results are compared at 24 and 48 hours.
—A. Seaman.

Rossi, C. & Pini, T. (1953). Un interessante focolaio di mal rossino nei fagiani. [*Erysipelothrix rhusiopathiae* **infection in pheasants.**] —*Zooprofilassi.* **8,** 461-464. [French summary.] **3043**

An account of an outbreak of *E. rhusiopathiae* infection involving 16 female birds out of a flock of 80 pheasants, with 9 deaths. The birds had been fed raw minced meat, supplied as horse flesh, but precipitation tests proved that it contained also pork, presumably from the carcass of a pig that had died from the infection. The infection was transmitted through skin lesions sustained during coitus.—I. Martini.

Langford, G. C., Jr. & Hansen, P. A. (1954). **The species of *Erysipelothrix*.**—*Leeuwenhoek ned. Tijdschr.* **20,** 87-92. [In English.] **3044**

The authors recommended that the 3 species described by Bergey (1948)—*E. rhusiopathiae, E. muriseptica, E. erysipeloidis*—should be united into one, to which the name, *E. insidiosa,* should be applied.—R. M.

LINZENMEIER, G. & SEELIGER, H. (1953). Zur Methodik und Bewertung von Sulfonamidresistenzbestimmungen mittels eines modifizierten Gussplattentestes bei *Listeria monocytogenes*. **[Determination of sulphonamide resistance using a modified plate test and *Erysipelothrix* (*Listeria*) *monocytogenes*.]**—*Z. Hyg. InfektKr.* **137,** 440-451. **3045**

The optimal conditions of time, temperature and concentration were studied by incorporating various sulphonamides into deep blood agar plates containing *E. monocytogenes*.
—E. G. WHITE.

ANON. (1953). **Where and what is hemorrhagic septicemia?** — *J. Amer. vet. med. Ass.* **123,** 242-244. **3046**

The author sugested that the use of the name " haemorrhagic septicaemia " be discontinued and that " pasteurellosis " should be used instead. In the U.S.A. " shipping fever " appears to be the main disease of cattle associated with *Pasteurella*.—R. A. HUCK.

BERGEON, P. (1953). Contribution au problème de l'unicité des pasteurelles vétérinaires. **[Relationship between pasteurellosis in various species of livestock.]** — *Rev. Élev.* **6,** 65-71. **3047**

Using calves, piglets and rabbits B. carried out cross-immunity tests with bovine, porcine and avian strains of *Past. septica*. He concluded that only septicaemic strains could be used for the preparation of antiserum, and that only actively pathogenic strains were capable of inducing active immunity. Using vaccine from fully virulent avian or porcine strains it was possible to establish immunity against all three strains. The avian strain conferred on piglets a stronger immunity than the porcine strain. The avian strain was highly pathogenic for rabbits.—A.S.

HORVATIĆ, I. (1953). Prilog liječenju pasterelloze svinja streptomicinom. **[Streptomycin treatment of *Pasteurella* infection in pigs.]**—*Veterinaria, Sarajevo.* **2,** 390-391. [In Croat. Abst. from English summary.] **3048**

H. treated 25 cases of *Pasteurella* infection (swine plague) in pigs (average body weight 50 kg.) by a single i/m injection of 1 g. streptomycin dissolved in 5 ml. water. All the pigs recovered.—R.M.

TUNKL, B. (1952). Primjena sulfonamida protiv pasteurelose. **[Use of sulphonamides in pasteurellosis.]**—*Vet. Glasn.* **6,** 585-697. [In Croat. Abst. from English summary.] **3049**

T. found that sulphadimidine was the most effective sulphonamide for the treatment of experimental *Pasteurella septica* infection in pigs, rabbits, mice, fowls, and pigeons. Two outbreaks of fowl cholera were controlled by the administration of sulphadimidine in the food.
—R.M.

GALLAGHER, C. H. (1954). **Investigation of the etiology of infectious ophthalmia of cattle.**—*Aust. vet. J.* **30,** 61-68. **3050**

Haemophilus (*Moraxella*) *bovis* was isolated from the conjunctival sacs of cattle affected with ophthalmia in four widely separated districts of Australia. The instillation of suspensions of *H. bovis* produced typical ophthalmia in both eyes of 3 out of 4 cattle. The incubation period was 2 to 3 days and the duration of the disease ranged from 21 to 27 days. Exudates from the eyes and nostrils of infected cattle were heavily charged with *H. bovis* and infected cattle were found to harbour the organism for at least 139 days. Serum agglutinins reached maximum titres 18–33 days after exposure to infection. Recovered cattle were resistant to re-infection for at least 139 days. *H. bovis* produced typical kerato-conjunctivitis when instilled into the conjunctival sacs of mice but not of sheep, rabbits and g. pigs. Treatment with an ointment containing 1% chloramphenicol was effective in early cases and was beneficial in advanced cases.
—D. F. STEWART.

MANLEY, F. H. (1952). **Observations on the genus *Proteus* with particular reference to incidence, pathogenicity, treatment and agglutination reactions.**—*Thesis, Zürich.* pp. 36. [In English.] **3051**

M. isolated species of *Proteus* from " tissues such as liver, heart or intestine " in 45% of dogs, 11% of pigs, 3% of cattle and 15% of fowls, healthy or otherwise, examined in Alabama, U.S.A., and *P. mirabilis* from outbreaks of disease in poultry. He suggested that proteus organisms may have a relationship to enteritis in dogs, especially puppies.—J. E. SMITH.

SOROURI, P. & MUDD, S. (1953). **Evidence of the existence of mitochondria in *Proteus*.**—*Indian J. med. Res.* **41,** 333-337. [Authors' summary modified.] **3052**

Cytoplasmic granules in the regular and swarmer cells of *P. vulgaris* and *P. mirabilis* were shown to give indicator reactions for oxidative-reductive enzymes characteristic of mitochondria, except that they did not give a clearly positive Nadi reaction. These granules were also shown to be distinctly extra-nuclear.

FEY, H. (1953). **On coliform bovine mastitis with special reference to infantile enteritis.**—*Proc. VIth Congr. int. Microbiol., Rome,* 1953. **2,** p. 308. [In English. Only abst. given. Abst. from abst.] **3053**

Out of 136 strains of coliform bacteria isolated from bovine mastitis, 113 were *Bact. coli.* F. also examined faeces of cows, and found that strains of *Bact. coli* which were found in mastitis were not commonly present in the faeces. Two strains (55:B5 and 26:B6), which had been isolated from enteritis in babies, were also isolated from cases of mastitis in cows [see also *V.B.* **23,** 2773], and a third was isolated from the prepuce of a bull [no details given]. Strain 26:B6 was present in the faeces of human beings on the farm on which there was a cow with mastitis associated with this strain, and it disappeared from their faeces after the cow recovered from mastitis.

—R.M.

ENGLERT, H. K. (1954). Zum Koliproblem in der Veterinärmedizin. Bemerkungen zu dem Artikel von Peters in Nr. 35/36-53 dieser Zeitschrift. [**The** *Bacterium coli* **problem in veterinary medicine.**] — *Dtsch. tierärztl. Wschr.* **61,** 120-121. **3054**

E. discussed the conditions that determine the benign or harmful nature of the bacterial flora of the gut, and whether pathogenic strains of *Bact. coli* exist in animals as they do in children.—A.S.

KJOS-HANSSEN, B. (1950). Eggleder peritonitt forårsaket av patogen " kloakkbakterie " hos høns. [**" Egg peritonitis " in hens caused by pathogenic " cloacal bacteria ".**] — *Nord. VetMed.* **2,** 523-531. [English and German summaries. Abst. from English summary.] **3055**

Pure cultures of a *Shigella*-like organism resembling a species present in the cloaca of many normal fowls were isolated from the oviduct in 25 of 45 cases of " egg peritonitis " in hens. There were some indications that the organism may produce an endotoxin and it was shown to be pathogenic for mice, g. pigs and fowls.—C. A. E. BRIGGS.

JOSLAND, S. W. (1954). **The immunogenic properties of** *Salmonella typhi-murium* **in sheep.** —*N.Z. vet. J.* **2,** 2-7. [Author's summary modified.] **3056**

The s/c injection of 20 ml. formolized alum-precipitated *S. typhi-murium* vaccine into adult sheep proved to be safe, and resulted in a transitory blood-serum somatic antibody response of a low order.

The number of vaccinated animals which survived i/v challenge with live culture of *S. typhi-murium* was greater than the number of unvaccinated control animals which survived.

Although the results indicated that vaccination afforded some degree of protection, an insufficient number of vaccinated animals showed evidence of protection to have statistical significance, or to warrant use of the vaccine in the field.

VAN ROEKEL, H. (1954). **Present status of pullorum disease eradication.**—*Proc. 57th Ann Meet. U.S. live Stk sanit. Ass.* 1953. pp. 244-248. **3057**

R. gave figures for the results of agglutination tests for *S. pullorum* infection in fowls performed in the U.S.A. during the past 50 years, and discussed control and eradication.

—R.M.

STAFSETH, H. J., COOPER, M. M. & WALLBANK, A. M. (1952). **Survival of** *Salmonella pullorum* **on the skin of human beings and in eggs during storage and various methods of cooking.**—*J. Milk Food Technol.* **15,** 70-73 & 80. **3058**

S. pullorum survives only a short while on human skin; it survives for 9 months in eggs stored at 25°C. and is not always destroyed in cooked eggs.—JOHN SEAMER.

LUZZIO, A. J., BUSHNELL, L. D. & ERWIN, L. E. (1953). **The antigenic variation of** *Salmonella pullorum.* — *Poult. Sci.* **32,** 7-10. **3059**

The authors classified 70 cultures of *S. pullorum* as regular, intermediate, or variant on the basis of the sensitivity of their antigens to the XII_3 (regular) factor and the XII_2 (variant) factor. After classification these parent strains were sown on various solid culture media, and the antigenic constitution of the daughter colonies studied in a like fashion. From their results the authors concluded that there was a tendency for antigenic stabilization to occur with the retention of both XII_3 and XII_2 factors by the organism. There was some evidence that the antigenic structure of *S. pullorum* can be influenced quantitatively by external factors.

—F. T. W. JORDAN.

RAO, S. B. V., NARAYANAN, S., RAMNANI, D. R. & DAS, J. (1952). **Studies on** *Salmonella gallinarum.*—*Indian J. vet. Sci.* **22,** 199-208. **3060**

A description of an outbreak of *S. gallinarum* infection in India in 1950, stated to be

the first important occurrence of this infection in that country, and of the measures taken to control it.—A.S.

SAKAZAKI, R. (1951). **[A salmonella type " *S. essen* " bacillus isolated from a fatal case of fowl paratyphoid with special reference to its serological variation.]**—*Jap. J. vet. Sci.* **13,** 121 - 129. [In Japanese. English summary.] **3061**

S. isolated a salmonella organism from the heart-blood, spleen, liver, kidney and faeces in a fatal case of fowl paratyphoid. In its antigenic constitution the organism resembled *S. essen* rather than *S. gallinarum*.

—KOGI SAITO.

YAMAMOTO, A., HARADA, K., FUKUMI, H. & NAKAYA, R. (1952). **On food poisoning due to *S. typhi-murium* from goose eggs.**—*Gunma J. med. Sci.* **1,** 87-95. [In English.] **3062**

The authors reported an outbreak of food poisoning from goose eggs in eight members of one family, the causative organism being *S. typhi-murium*. One patient died 26 hours after the onset; the others recovered after 2–3 weeks.

—W. R. BETT.

ANON. (1954). **Uniform methods and rules for the establishment and maintenance of certified brucellosis-free herds of cattle and modified certified areas.**—*Proc. 57th Ann. Meet. U.S. live Stk sanit. Ass.* 1953. pp. 148-153. **3063**

A description of regulations approved by the Bureau of Animal Industry, U.S.A., which came into force in December 1953, concerning the establishment and maintenance of certified brucellosis-free herds of cattle and of a scheme for the establishment of brucellosis-free areas. Provisions are made for herd agglutination tests, restriction of movement of cattle into brucellosis-free herds or areas, the branding of reactors, and the identification of all vaccinated cattle by ear marks or branding.—R.M.

MINGLE, C. K. (1954). **Report on the cooperative brucellosis control and eradication program.**—*Proc. 57th Ann. Meet. U.S. live Stk sanit. Ass.* 1953. pp. 110-116. **3064**

M. gave the numbers of serum agglutination and milk ring tests for *Br. abortus* infection in cattle carried out by the Bureau of Animal Industry, U.S.A., during the year ended the 30th June 1953. Out of 7,750,000 agglutination tests 3·4% were positive. Milk from 26·2% of 670,000 herds was positive to the ring test. The number of cattle vaccinated with Strain 19 vaccine was 3,688,000. Of 27,000 goats and 72,000 pigs tested during 18 months, 0·78% and 4·7% respectively reacted to the agglutination test.—R.M.

LAFENÊTRE, H. (1952). La prophylaxie des brucelloses en France. **[Prevention of brucellosis in France.]** — *Bull. Off. int. Epiz.* **38,** May. pp. 46-60. [English summary.] **3065**

L. emphasized that unless the control measures for *Br. abortus* infection in cattle are carried out rigorously, the effort tends to be wasted.

Over the years semi-rigorous control measures have been carried out without success. He stated that incidence of brucellosis in sheep and goats in France is declining, but that the exact extent of the infection is uncertain, because attempts to enforce compulsory notification have been unsuccessful. Vaccination has not been successful in sheep and goats. For control, slaughter of infected sheep and goats and the isolation of infected flocks is necessary. He emphasized the measures necessary to prevent human infection by pasteurizing or boiling of milk, the avoidance of cheeses less than a month old, together with the necessary hygienic measures on the farm.—R.M.

BOTTICELLI, S. (1953). Studio sperimentale sull'infezione brucellare canina trasmessa per via endotesticolare. **[Experimental intratesticular infection of dogs with *Br. abortus*.]**—*Croce Azzurra.* **4,** 199-209. **3066**

Three dogs, one of them affected with distemper, inoculated intratesticularly with *Br. abortus* did not develop lesions, but yielded positive reactions to serological and skin tests two and a half months later.—I. W. JENNINGS.

SEELEMANN, M. (1953). Standardisierung der Untersuchungsmethoden zwecks Feststellung des seuchenhaften Verkalbens (Abortus-Bang-Infektion—Brucellose—des Rindes). **[Standardization of diagnostic procedures for *Brucella* infection in cattle.]**—*Mh. Tierheilk.* **5,** 383-391. **3067**

S. described techniques of the agglutination, flocculation, and ring tests, which he suggested should be adopted as standard techniques for the diagnosis of brucellosis in cattle.—R.M.

KING, N. B. (1951). **Capillary tube method for conducting the brucella-stained antigen milk test.**—*Amer. J. vet. Res.* **12,** 75-80. **3068**

K. described a modification of the milk ring test, employing capillary tubes measuring 0·8 × 80 mm. These were filled for 5–7 mm. of their length with stained *Br. abortus* antigen

and with the milk to be examined in the remaining space. Results were read after 30 min. at room temp. A comparison of the results obtained with the milk ring test and the capillary tube test from milk from 428 cows of 9 herds showed that there was good agreement between the two, with fewer false positives by the latter test. K. concluded that the capillary tube test was more reliable for detecting infected animals, required less antigen, and was quicker.—R.M.

MORSE, E. V., POPE, E. P. & GROTA, C. A. (1952). **A comparison of the ring and capillary tube tests for bovine brucellosis in a county-wide area test.**—*J. Amer. vet. med. Ass.* **120,** 209-212. **3069**

The authors considered that the milk ring test was slightly more accurate in detecting infected herds than the capillary tube test described by King [see preceding abst.].

—E. A. GIBSON.

RUIZ CASTAÑEDA, M. (1953). **The evaluation of rapid tests in human brucellosis.**—*Bull. World Hlth Org.* **9,** 399 - 408. [French summary.] **3070**

Blood cultures and tube-agglutination tests reveal most cases of brucellosis, but many laboratories are not equipped to perform them and prefer more rapid methods. The author described two rapid tests and a skin test which compare well with conventional methods.

The spot test utilizes an antigen prepared from formol-killed *Brucella* stained with methylene blue and standardized to give a positive test only when antibody is present in a titre of 1 : 100 or above. A drop of blood taken directly from the patient is mixed with a drop of antigen on a glass slide. If antibody is present a blue ring of agglutinated antigen appears in one minute.

For the surface-fixation test the antigen is printed in black dots on filter paper. Drops of unknown serum, positive serum and negative serum are each placed over individual dots of antigen. The paper is hung over sodium-chloride solution and by capillary absorption the fluid is drawn upward and over the spots. The spot of the negative control is washed out leaving a trail of stained antigen. The spot remains fixed in the positive control and the unknown is interpreted from the controls.

For the intradermal skin test a hapten-like soluble extract of *Brucella* is used which has been standardized by i/d injection into *Brucella*-infected g. pigs.

Of 592 proven cases of brucellosis, all were positive to the spot test, 591 were positive to the surface-fixation test and 396 were positive to the skin test. Although skin-test reactions were only 50% positive during the first three months of disease they had gradually increased to 90% positivity after the sixth month. The skin test is often the only indication of past infection, or of a state of hypersensitivity accompanied by clinical manifestations which is referred to as chronic brucellosis.

—L. M. JONES.

PARNAS, J. & STEPKOWSKI, S. (1950). Quelques notes sur la brucellose chez l'homme et chez l'animal. **[Brucellosis in man and animals.]** —*Bull. Off. int. Epiz.* **33,** 564-574. **3071**

A general note on the position with regard to brucella infection in animals in Poland. It is seldom diagnosed in human beings in Poland.

—G. V. LAUGIER.

SILVERTON, M. I. (1954). *Brucella abortus* **infection as a complicating cause of death.**—*Med. Offr.* **91,** 163-164. **3072**

A note on a confirmed case of *Br. abortus* infection in an adult human being.

STEVENSON, W. J., FERRIS, A. A. & LEWIS, F. A. (1954). **A comparison between the cutaneous sensitivity test and a modified anti-globulin test in investigation of *Brucella* infection in abattoir workers.**—*Amer. J. Hyg.* **59,** 133-139. [Authors' summary slightly modified.] **3073**

In a survey of 71 abattoir workers close correlation was found between the presence or absence of skin sensitivity to brucellergen, and the presence or absence of circulating antibody to *Br. abortus,* as determined by a modified Coombs technique.

GWATKIN, R., CONNELL, R. & DUTHIE, R. C. (1954). **Brucellosis. V. Vaccination of pregnant heifers one month prior to infection with ether-killed saline-oil emulsion of *Brucella abortus* and Strain 19.** — *Canad. J. comp. Med.* **18,** 102-108. [For part IV, see *V.B.* **23,** 1468.] **3074**

There was no significant difference in the number of living calves produced by a group of heifers vaccinated with ether-killed saline-oil suspension of *Br. abortus* and by unvaccinated controls. A third group, vaccinated with Strain 19 and infected at the same time, showed a difference which was just short of the conventional level of significance.—P. J. G. PLUMMER.

DASZKIEWICZ, I. M. & WROŃSKI, E. (1952). Badania nad *Brucella abortus* określanie fazy S i R. **[Differentiation of S and R phases of**

Br. abortus.]—*Acta microbiol. polon.* **1**, 301-311. [English and Russian summaries. Abst. from English summary.] **3075**

The authors compared methods employing dyes for the differentiation of S and R forms of 51 strains of *Br. abortus*. The best results were obtained from the acriflavine test and the crystal violet agar method. They considered that the basic fuchsine test and the rivanol (ethoxy diaminoacridine lactate) test should be abandoned.—R.M.

LEVI, M. L., NEEMAN, L., TAMARIN, R. & DAFNI, I. (1952). **[An outbreak of brucellosis affecting goats and cattle in Israel.]**—*Refuah Vet.* **9**, 73-79. [Abst. from English summary p. 98.] **3076**

The authors isolated a strain of brucella from an outbreak of abortion amongst cows and goats on one farm in Israel. This strain resembled *Br. abortus* in its H_2S production and CO_2 sensitivity, but possessed the cultural characteristics of *Br. melitensis* on thionine and fuchsine media.—A. H. LINTON.

CALHOUN, E. L. (1954). **Natural occurrence of tularemia in the lone star tick, *Amblyomma americanum* (Linn.), and in dogs in Arkansas.** —*Amer. J. trop. Med. Hyg.* **3**, 360-366. [Abst. from author's summary.] **3077**

Epidemiological investigations in Arkansas revealed that the highest incidence of human tularaemia within the State occurred during April to September, and that approx. 56% of the yearly reported cases had a history of tick bite. These epidemiological investigations prompted a cooperative project between the Communicable Disease Center and the Arkansas State Board of Health.

Data collected for two consecutive years indicate that *A. americanum* is the predominant tick in Arkansas, followed by *Dermacentor variabilis* (American dog tick) during the summer, as represented by collections from cattle and dogs and by dragging. While the latter had a wider distribution within the State, the former predominated in the more mountainous and heavily wooded areas.

Br. tularensis was isolated from six different lots of *A. americanum* (1 in 1951 and 5 in 1952) collected from dogs and cattle and by drags. Two of the positive lots were composed entirely of adult females. Though one large collection of *D. variabilis* was removed from the same hosts at the time the positive *A. americanum* ticks were collected, none of the collections of the former species was found to harbour the organism.

Blood specimens were taken from the hosts from which the positive lots of ticks were removed. Of sera of seven dogs submitted for the tularaemia agglutination tests, six were found positive in dilutions from 1:40 to 1:640. Three blood specimens from cows gave positive reactions in dilutions of 1:80.

WOODWARD, J. M., SBARRA, A. J. & HOLTMAN, D. F. (1954). **The host-parasite relationship in tularemia. I. A study of the influence of *Bacterium tularense* on the amino acid metabolism of white rats.**—*J. Bact.* **67**, 58-61. **3078**

Chromatographic analysis of the blood of rats infected with *Br. tularensis* revealed a decrease of free amino acids. Injection of killed or avirulent strains did not have this effect nor did re-infection of rats that had recovered.

—W. S. MARSHALL.

KELEN, E. (1952). Leptospirosis nagyüzemi borjúállományokban. **[Leptospirosis in calves.]**—*Mag. allator. Lapja.* **7**, 259-266. [In Hungarian. English and Russian summaries. Abst. from English summary.] **3079**

K. described 5 outbreaks of leptospira infection (species not stated) in calves in Hungary. Diagnosis was confirmed by microscopic examination, cultivation, and by the inoculation of g. pigs, hamsters and calves with material from infected animals.—R.M.

VAN DER HOEDEN, J., HALEVY, C. & DAFNI, I. (1953). **Leptospirosis in cattle in Israel.**—*J. comp. Path.* **63**, 93-100. [Authors' summary modified.] **3080**

The authors described an outbreak of leptospirosis in a herd of 102 cattle. Out of 12 which showed marked clinical symptoms, 10 died. Three weeks after the onset of the disease the sera of 49 cattle agglutinated *L. grippo-typhosa* at a dilution of 1:200 or over. The milk of affected cows also yielded high titres.

P.M. examinations revealed advanced interstitial nephritis, and the spirochaetes were demonstrated in sections or by cultural methods. Cases of human leptospirosis occurred when the bovine disease was subsiding. Rats, mice and voles were abundant in the area, and 2 out of 8 voles examined were infected. The authors assumed that these rodents were the main reservoir of infection.

TE PUNGA, W. A. & BISHOP, W. H. (1953). **Bovine abortion caused by infection with *Leptospira pomona*.** — *N.Z. vet. J.* **1**, 143-149. **3081**

The authors described an outbreak of abortion occurring in the 5th to 9th months of

pregnancy in a herd of cows. Agglutination tests of the blood of aborted cows for *Br. abortus, V. fetus* and *Tr. foetus* were negative, but those for *L. pomona* were positive in 23 out of 25 cases. Leptospira were seen in the urine of 5 cows. The rest of the livestock on the farm (horses, cattle, sheep, dogs) were examined, and although a high proportion of blood samples gave high titres for *L. pomona,* no symptoms were observed, apart from abortion in the cows. They described pathological findings in a cow and 2 aborted calves, and compared placental lesions with those seen in brucella infection and vibrio infection.—R.M.

BRYAN, H. S. (1954). **Studies on leptospirosis in domestic animals. III. Incidence of leptospirosis in cattle and swine in Illinois.**—*J. Amer. vet. med. Ass.* **124,** 423-426. **3082**

A report of the results of serum agglutination-lysis tests for leptospirosis on blood samples from 15,018 cattle in 1,528 herds and from 1,990 pigs in 263 herds, in 84 counties in the State of Illinois, using a live-culture antigen of *L. pomona.* Of the samples from cattle, 1,677 gave a positive reaction, 418 of the herds containing one or more reactors. Of the samples from pigs, 293 gave a positive reaction, 77 of the herds containing one or more reactors. Sixty-three of the counties were involved. Abortions had been reported from 73 out of 125 cattle herds, and from 46 out of 54 herds of pigs, in which the tests revealed reactors.
—F.E.W.

MONLUX, A. W., SEIBOLD, H. R., SHALKOP, W. T. & DAVIS, C. L. (1952). **Leptospirosis in hogs.**—*N. Amer. Vet.* **33,** 467-469. [Abst. from authors' summary.] **3083**

Of 176 cases of jaundice in pigs, leptospira were demonstrated in the kidneys of two, and the infection was apparently unrelated to the jaundice. In these two cases there was a limited focal, subacute, interstitial nephritis.

BURNSTEIN, T. & BAKER, J. A. (1954). **Leptospirosis in swine caused by *Leptospira pomona*.**—*J. infect. Dis.* **94,** 53-64. [Abst. from authors' summary.] **3084**

Leptospira pomona produced infection in all of 25 pigs inoculated subcutaneously and in all of 7 pigs inoculated intranasally, but failed to infect 6 of 7 pigs when administered orally. Except in 2 pigs that developed severe illness and jaundice, the infection was slight, the only symptom being a slight rise in body temperature. Following inoculation, leptospira were found in the blood only in the early stage of infection and in the urine in the later stages, the latter finding being correlated with the finding of lesions in the kidneys. Infected pigs excreted numerous leptospira in their urine over long periods, whereas infected calves shed relatively few organisms over a shorter period. Transmission of infection by contact exposure occurred readily from infected pigs to susceptible ones and to calves, but not from calves to pigs. Of 285 pigs that came to market 65 were found to have antibodies for *L. pomona;* infection may, therefore, be widespread in the pig population.

BREDE, H. D. (1951). Leptospirosen im Kölner Raum 1950. **[Leptospira infection in man and in dogs in Cologne during 1950.]**—*Z. Immun-Forsch.* **109,** 1-9. **3085**

In an outbreak of *L. canicola* infection in Cologne in July-Dec. 1950, thirty cases occurred within one sq. mile: 25 dogs and 5 human beings, 4 of the latter being the owners of affected dogs and the other a veterinary surgeon who treated cases. B. reported the results of serological tests in human beings and dogs in Cologne and in another Rhineland district, using 17 strains of 6 types of leptospira. Tests were also made on the blood of 42 horses, but he gave no details of their reactions. Of samples from 310 human beings of whom 288 were sick, 54 gave positive reactions in the agglutination-lysis test (32 to *L. canicola,* 16 to *L. grippo-typhosa,* 4 to *L. icterohaemorrhagiae,* and one each to *L. pomona* and *L. australis*). Of 258 samples from dogs, of which 210 were sick, 142 gave positive reactions (138 to *L. canicola,* 2 to *L. icterohaemorrhagiae* and one each to *L. pomona* and *L. australis*). The agglutination-lysis test gave earlier positive reactions than the c.f. test.—F.E.W.

JELINEK, V. (1950). Rozprzestrzenienie leptospir u ludzi i zwierząt w Czechosłowacji. **[*Leptospira* infections of man and animals in Czechoslovakia.]**—*Med. weteryn.* **6,** 398-405. [English and Russian summaries.] **3086**

A general account of leptospira infection in man and animals as seen in Czechoslovakia. The author stated that in 1923 he isolated leptospira from a case of Stuttgart disease and that at that time he reproduced the disease experimentally in a dog, satisfying himself that the cause was a spirochaete.—JOHN R. MITCHELL.

REICH, W. (1952). Zusammenhang zwischen Agglutinations-Lysis-Titer und Vorhandensein der Leptospiren im Körper der Goldhamster. **[Relationship between the agglutina-**

tion titre and the presence of leptospira in the body in hamsters.] — *Inaug. Diss., Munich.* pp. 69. **3087**

Leptospira were not demonstrable in the tissues of 22 hamsters that were infected i/p with cultures of *L. canicola, L. grippo-typhosa* and *L. icterohaemorrhagiae* after the disappearance of agglutinins from the blood.

—H. Behrens.

I. McLennan, J. D., Mandl, I. & Howes, S. L. (1953). **Bacterial digestion of collagen.** —*J. clin. Invest.* **32,** 1317-1322. **3088**

II. Mandl, I., MacLennan, J. D. & Howes, E. L. (1953). **Isolation and characterization of proteinase and collagenase from** *Cl. histolyticum.* — *Ibid.* 1323-1329. [Absts. from authors' summaries.] **3089**

I. The authors described methods for determining the collagenase and other proteinase activities of micro-organisms. Of 162 strains of bacteria examined for such activities, few other than the spore-forming aerobes and anaerobes had proteinase activity, and only the clostridia had collagenase activity, *Cl. histolyticum* being by far the most active in both respects. Certain very potent strains of *Cl. histolyticum* were selected for further study from a collection of 82 strains examined. The authors described a medium which was found to favour increased production of this proteinase.

II. An account of the separation of proteolytic enzymes from *Cl. histolyticum*. The authors isolated a proteinase free from collagenase activity and a powerful collagenase, which, although it still contained other proteinases, had superior collagen digesting capacity. They studied the effect of pH, cations and anions on the activity of the former enzyme, and determined its stability. Its main constituent appeared to be a previously undescribed enzyme.

Quesada, A. (1953). La gastro-entero-tossiemia degli ovini. (Studi e ricerche.) [**Gastro-enterotoxaemia in sheep caused by** *Clostridium welchii* **Type C.**]—*Clin. Vet. Milano.* **76,** 324-344. [English and French summaries.] **3090**

Gastro-enterotoxaemia of sheep due to *Cl. welchii* Type C (Wilsdon) is widespread in Sardinia, especially during autumn and winter. Sheep dosed experimentally with an 18-hour broth culture intramuscularly developed the comatose form of the condition, but those dosed *per os* developed no symptoms.—I. Martini.

Ipsen, J., Jr. (1954). **Inherent immunizability to tetanus toxoid, based on studies in pure inbred mice.** — *J. Immunol.* **72,** 243-247. [Author's summary modified.] **3091**

Ten inbred mouse strains were tested for immunity to tetanus toxin after treatment with graded doses of alum-precipitated tetanus toxoid. Some strains required about 0·005 ml. toxoid to obtain a given immunity in 14 days, while other strains required a dose of toxoid 10 to 30-fold higher. The former were characterized as having high immunizability, the latter group as having low immunizability.

All ten strains required the same m.l.d. of tetanus toxin when not immunized. The authors concluded that susceptibility to toxin is distinct from immunizability.

Coleman, I. W. (1954). **Studies on the oral toxicity of** *Clostridium botulinum* **toxin, type A.** — *Canad. J. Biochem. Physiol.* **32,** 27-34. **3092**

Three aspects of the toxicity of *Cl. botulinum* toxin, Type A, when given *per os* were studied in dogs, mice and rats. Migration of the crystalline toxin from the intestine to the blood stream did not occur. The crystalline toxin was inactivated by pepsin and chymotrypsin, but not by trypsin.—Thomas Moore.

Plastridge, W. N. & Easterbrooks, H. L. (1952). **Effect of antibiotics in diluted bull semen on** *Vibrio fetus.*—*Amer. J. vet. Res.* **13,** 145-148. **3093**

The addition to bull semen of 500 g. of streptomycin per ml. inhibited the growth of *V. fetus* but did not kill the organisms. Penicillin, aureomycin, terramycin, polymyxin, bacitracin, gramicidin, and tyrothricin had no effect on *V. fetus*.—L. M. Jones.

Osborne, J. C. (1953). **Avianized** *Vibrio fetus* **vaccine and some preliminary observations on its use.**—*Proc. 89th Ann. Meet. Amer. vet. med. Ass. Atlantic City. June 23-26th.* 1952. pp. 112-115. Discussion: pp. 115-116. **3094**

A virulent strain of *V. fetus* was passaged once through a chick embryo, and a live vaccine was prepared according to the method described by Plastridge, but without formol. The vaccination was given subcutaneously to 9 virgin heifers 3 times at weekly intervals; 21 days later they, with 10 unvaccinated controls, were exposed to virulent *V. fetus* by the intra-uterine route. After 6 months, all having been inseminated at every apparent oestrus, 6 of the vaccinated heifers and 3 of the unvaccinated controls were diagnosed as pregnant.

—C. C. Bannatyne.

GOWANS, J. L., SMITH, N. & FLOREY, H. W. (1952). **Some properties of nisin.**—*Brit. J. Pharmacol.* **7,** 438-449. [Authors' summary modified.] **3095**

Nisin powerfully inhibits the growth *in vitro* of many strains of *Str. pyogenes* and *Staph. aureus,* but appears to be considerably less active against *M. tuberculosis* than previously reported. Fractions prepared from crude material had no greater activity against *M. tuberculosis* than the crude substance.

As nisin is only slightly soluble at the pH of blood its toxicity was tested by the intravenous injection of fine suspensions into mice. The largest single intravenous dose that caused no symptoms or abnormalities was 8 mg.

The intravenous injection of 1 mg. a day for eight days caused no changes in the apparent well-being of mice, but histological examination disclosed small areas of necrosis in the liver and slight changes in the tubules of the kidneys.

Intravenous injection of 870 mg. into a rabbit weighing 3 kg. over a period of 18 days produced no striking effects. Nisin in suspension injected subcutaneously became encapsulated at the injection site. Intrathecal injection of 4·5 and 9 mg. of suspension in two rabbits produced coma. Nisin was partly excreted by the kidneys; it could be detected in the blood for some hours after injection.

Under certain conditions it is effective against experimental infection of mice with Str. *pyogenes* and *Staph. aureus.* No effect was demonstrable against infection with a bovine strain of *M. tuberculosis* in rabbits.

JETTMAR, H. M. (1952). Über die bacteriostatische und bactericide Wirkung der Cölomflüssigkeit der Ascariden. [**Bacteriostatic and bactericidal action of the coelom-fluid of ascarids.**] — *Z. Hyg. InfektKr.* **134,** 24-46. **3096**

J. stated that coelom fluid of ascarids had a bacteriostatic and bactericidal effect on some Gram-positive micro-organisms and their spores, on some strains of diphtheroids, *Sarcina* organisms, some Gram-positive coccobacteria from the intestine of g. pigs, *Clostridium tetani, Cl. oedematiens* and on heated spores of *B. anthracis.* Gram-negative bacteria were resistant. The coelom fluid also acted as a prophylactic against lethal doses of *Corynebact. diphtheriae* and *B. anthracis.*—H. BEHRENS.

AINSWORTH, G. C. & COWAN, S. T. (1954). **Rules of nomenclature for fungi and bacteria.** —*J. gen. Microbiol.* **10,** 465-474. [Authors' summary copied *verbatim.*] **3097**

Attention is drawn to certain requirements, of the current International Botanical and Bacteriological Codes of Nomenclature, with special reference to the denoting of categories, the proposal of new species, and the changing of names; three procedures commonly encountered by authors and editors. The requirements for the proposal of new specific names of fungi and bacteria are: *General requirements.* The name chosen must be in Latin binomial form and should be coined according to the practice set out in the Codes (Bact. Code, Rules, 6, 27, 28, Appendix A; Bot. Code, Art. 33, 82, Rec. 83A).

The name must be effectively published. (It is desirable that scientific journals in which new taxa are proposed should indicate the exact date of publication of the parts.)

The name must be validated by a concise description (the diagnosis) of the diagnostic features of the new taxon. (The diagnostic features should not have to be deduced from an exhaustive account of the organism possibly spread over several pages.)

The description should, whenever possible, be accompanied by illustrations of which the scale and the specimen(s) on which they are based should be stated.

All measurements should be in metric system.

The date of collection or isolation of the type material should be given together with the precise locality and the substrate or host (the last being designated by its scientific name).

The location of the type should be stated.

The etymology of the name should be explained.

Special requirements for fungi. The diagnosis must be in Latin (Bot. Code, Art. 44). The type specimen should be deposited, if possible, in a national herbarium, and if the type is a collection and portions are deposited in several herbaria then one of these isotypes should be designated as the holotype.

Special requirements for bacteria. No Latin diagnosis is required but ' in works written in a language unfamiliar to the majority of workers in bacteriology, it is recommended that the authors publish simultaneously the diagnosis in a more familiar language ' (Bact. Code, Rec. 12a).

Subcultures of the type strain should be deposited at one or more of the national culture collections.

FUENTES, C. A., SCHWARZ, J. & ABOULFIA, R. (1953). **Some aspects of the pathogenicity of *Candida albicans* in laboratory animals.**—

Mycopathologia. **6,** 176-181. [In English. Abst. from authors' summary.] **3098**

A study of nervous and haemorrhagic signs of experimental infection with *C. albicans,* together with data on the comparative susceptibility of laboratory animals to i/v inoculation.

Paresis, ataxia, choreatic movements, unilateral neck muscle contractures, etc. were observed in inoculated rabbits, rats, mice and g. pigs. Epistaxis and periocular haemorrhage were observed only in rats. Rats were most susceptible to infection, rabbits, g. pigs and mice, in that order, being less so. A special selectivity for prostatic localization was observed in rats, but not in the other animals.

JANKE, R. G. (1954). Studien über die Antibiotika-Wirkung bei Sprosspilzen. [**Growth-promoting action of penicillin, aureomycin and terramycin on** *Candida albicans*.]—*Zbl. Bakt. I. (Orig.)*. **160,** 628-636. **3099**

In vitro studies with *C. albicans* and a species of *Torulopsis* showed that penicillin, aureomycin and terramycin at all levels stimulate cell multiplication. Rate of multiplication rises from low concentrations of antibiotic (1 unit/ml.) to a maximum at concentrations of 32–128 units/ml. and then falls with further increases in the antibiotic.—E. G. WHITE.

FISCHER, E. (1953). Die Technik der Identifizierung hefeartiger Mikroorganismen [**Identification of yeasts.**]—*Schweiz. Z. allg. Path.* **16,** 86-96. [In German. English and French summaries.] **3100**

A brief discussion of the methods used in the identification of yeasts, with special reference to the value of the major classification schemes, such as those contained in the publications of the Central Bureau for Yeast Cultures in Amsterdam.—E. G. WHITE.

TARANYUK, P. S. (1953). [**" Blastomycin ", an allergen and remedy for** *Histoplasma farciminosum* **infection in horses.**] — *Veterinariya Moscow*. **30,** No. 5. pp. 12-16. [In Russian.] **3101**

T. described the use of an i/d test with an allergen, designated " blastomycin ", prepared from a broth culture of *Histoplasma farciminosum* for the diagnosis of epizootic lymphangitis in horses. He also described treatment by 1 ml. injections of this product direct into each lesion, 3–5 sites being so treated each day, an i/d dose of 1 ml. also being given. He stated that 55 of 56 horses under this treatment recovered.—F. A. ABBEY.

EMMONS, C. W. (1953). *Cryptococcus neoformans* **from a severe outbreak of bovine mastitis.**—*Mycopathologia*. **6,** 231-234. [In English. Author's summary modified.] **3102**

A comparison of 62 strains of *C. neoformans* isolated from a severe outbreak of bovine mastitis revealed considerable variation in colour, acid production in sugars, and amount of capsular material. During the course of the study, the origin of 10 mucoid mutants was noted. The strains were compared with the original Sanfelice strain and with strains of the same species isolated from human cryptococcosis, and from soil. They were typical of the species *C. neoformans* in colony characteristics, morphology, temperature tolerance, acid production in sugars and pathogenicity for mice.

PERALTA BERGNA, H. D. & GALLO, G. G. (1953). Comunicación sobre el tratamiento de la rhinosporidiosis. [**Treatment of** *Rhinosporidium seeberi* **infection of the nasal passages in horses.**]—*Rev. Vet. milit., B. Aires*. **1,** No. 2. pp. 75 & 77-81. **3103**

The authors claimed to have successfully treated rhinosporidiosis in horses by the use of solution of formaldehyde, applied to or injected into the nasal lesions, with or without surgical removal of polypoid growths.—R.M.

ROMAGNOLI, A. (1951). L'actinomicosi del cane e del gatto. Contributo sperimentale. [**Experimental actinomycosis in the dog and cat.**] —*Ann. Fac. Med. vet., Pisa*. **4,** 33-47. [English and French summaries.] **3104**

The intracardial, intraperitoneal, or subcutaneous injection of *Actinomyces bostroem* [*A. graminis*] did not cause any reaction in 2 cats. Intravenous injection in a dog was negative. Abscesses were observed in one out of 2 dogs inoculated subcutaneously. Peritonitis was observed in one out of 2 dogs inoculated intraperitoneally.—I. MARTINI.

LINDENBEIN, W. (1952). Über einige chemisch interessante Aktinomycetenstämme und ihre Klassifizierung. [**Some new species of** *Actinomyces* **and their classification.**] — *Arch. Mikrobiol.* **17,** 361-383. [Abst. from abst. in *Zbl. Bakt. I. (Ref.)* **151,** 435 (1953).] **3105**

L. described seven new species of *Actinomyces*.—W. R. BETT.

JOHNSTON, K. G. (1954). **Nasal actinobacillosis in a sheep.**—*Aust. vet. J.* **30,** 105-106. [Abst. from author's summary.] **3106**

J. described a case of nasal actinobacillosis in an aged Merino ewe. He pointed out that

abscess formation in the mucosa and submucosa of the nasal cavity of the sheep occurs in both melioidosis and actinobacillosis.

WHITE, R. W. (1952). **Selective bacteriostatic substances for the isolation and cultivation of *Asterococcus bovis*, the causal organism of contagious bovine pleuropneumonia.** — *Brit. vet. J.* **108,** 111-123. [Abst. from author's summary.] **3107**

With a combination of thallium acetate 1:1,000, sulphamethazine 1:5,000, and crystal violet 1:1,000,000 in Bennett's (1932) broth, full growth occurred of the organism of bovine contagious pleuro-pneumonia in extreme dilutions, with useful suppression of contaminants. Streptococcal contaminants occurring grossly were not satisfactorily controlled, and attempts to overcome them by using different sulphonamides in very high concentrations were not successful.

The pleuro-pneumonia organism in extreme dilutions tolerated penicillin at 500 units per ml. or less in the medium and, with an undiluted inoculum, as much as 10,000 units of penicillin per ml. Contaminants were easily controlled while the penicillin lasted, with the exception among the organisms tested of *Bact. coli*.

DAFAALLA, E. N. & WHITE, R. W. (1953). **Contagious bovine pleuropneumonia vaccine.** [Correspondence.] — *Vet. Rec.* **65,** 147-148. **3108**

The authors offered some comments and observations on a communication by Sheriff & Piercy [*V.B.* **23,** 386] on the passage of the organism of bovine contagious pleuro-pneumonia through egg embryos for vaccine production.—E. G. WHITE.

SCHWEINBURG, F. B. & SYLVESTER, E. M. (1953). **Bacteriology of the healthy experimental animal.**—*Proc. Soc. exp. Biol., N.Y.* **82,** 527-530. **3109**

The bacteriology of various organs and tissues of healthy dogs, rabbits, g. pigs, rats and hamsters was investigated. Cultures from the last three species were invariably sterile. Blood from the vena cava and the bile and urine of dogs and rabbits was sterile, but most other tissues of healthy dogs, and to a lesser degree rabbits, yielded clostridia. Embryos of healthy bitches were sterile. The clostridia were identified as *Cl. welchii*, but there is no reference to the types of toxin produced. Fifteen samples of human liver obtained at biopsy were sterile.—E. G. WHITE.

BERNINGER, E. (1952). Untersuchungen der im Rectum und Caecum vorkommenden Bakterien beim Rind unter Berücksichtigung des Schlachtbefundes. **[Microflora of the rectum and caecum of slaughter cattle.]** — *Inaug. Diss., Munich.* pp. 55. **3110**

B. examined the rectal and caecal flora of 54 slaughter cattle. *Bact. coli* was the most prominent in the carcasses from 4 healthy animals, whereas in 40 that were diseased clostridia were predominant over atypical *Bact. coli*. Virulent *Bact. coli* were isolated from 4 carcasses from septicaemic animals.

—W. G. SILLER.

SALTON, M. R. J. (1953). **Cell structure and enzymic lysis of bacteria.**—*J. gen. Microbiol.* **9,** 512-523. **3111**

Heated Gram-positive bacteria resist tryptic lysis better than heated Gram-negative bacteria, apparently because of their more heat-resistant cell wall.—J. E. SMITH.

LÜCK, H. (1953). Über die bakteriostatische Wirkung von komprimiertem Sauerstoff auf Mikroorganismen. **[Bacteriostatic effect of compressed oxygen on micro-organisms.]**—*Schweiz. Z. allg. Path.* **16,** 728-739. [In German. English and French summaries.] **3112**

Oxygen under pressure was bacteriostatic to a variety of bacteria and fungi: bactericidal effects were observed at higher temperatures and when exposure was prolonged. A simple modification of the metal caps used for aerated mineral-water bottles enabled pressures up to ten atmospheres to be used and provided a rapid and cheap method of high pressure exposure for cultures in tubes inside the bottles.

—E. G. WHITE.

See also absts. **3288** (ergotism); **3289** (mushroom meal for poultry); **3337** (diseases transmitted by rats and mice); **3361** (heredity and swine erysipelas); **3391** (report, Nigeria); **3392** (report, Gold Coast); **3393** (report, Jamaica); **3395** (report, Holland); **3396** (report, U.S.A.).

DISEASES CAUSED BY PROTOZOAN PARASITES

MITSCHERLICH, E. & REUSS, U. (1952). Ein vereinfachtes Verfahren zur Herstellung wässriger Trypanosomenantigene. **[Simple method for the preparation of water-soluble *Trypanosoma* antigens.]** — *Mh. VetMed.* **7,** 106-108. **3113**

Citrated dogs' blood containing *T. equiperdum* was centrifuged, and the deposit, comprising erythrocytes and trypanosomes, haemolysed. A mixture of equal parts of glycerin and saline

was added in ratio of 1 : 2 and shaken with glass beads for 8–9 hours to give the antigen.

—M. L. Clarke.

Hoare, C. A. (1954). **The loss of the kinetoplast in trypanosomes, with special reference to** *Trypanosoma evansi.* — *J. Protozool.* **1,** 28-33. [Author's summary modified.] **3114**

An account of the spontaneous occurrence and prolonged maintenance of strains of *T. evansi* devoid of the kinetoplast. H. discussed the structure and nature of this organelle—which he regarded as a plastid—and surveyed previous work on its loss. Among the six akinetoplastic strains studied, two were kept under continuous observation for about 17 years, in the course of which many thousands of trypanosomes were examined, without a single normal flagellate being detected. In these cases, therefore, the aberrant condition had become permanently fixed as a heritable character. Another strain of *T. evansi* first exhibited considerable fluctuation in the number of akinetoplastic forms (1–70%) but subsequently reverted to the normal state. The perpetuation of the akinetoplastic condition appears to be due to failure of the kinetoplast to divide, with the result that trypanosomes thus incapacitated divide irregularly, giving rise to akinetoplastic forms, which continue to breed true. This may lead to the production, on the one hand, of fluctuating strains, in which the akinetoplastic and normal trypanosomes compete for survival; and, on the other hand, of totally akinetoplastic strains. The loss of the kinetoplast is comparable to the loss of plastids in phytoflagellates. H. considered this phenomenon to be a mutation determined by plastogenes, for the mutant trypanosomes appear suddenly, breed true, and give rise to a new race. Moreover, the kinetoplast once lost does not arise *de novo*. He suggested that *T. equinum* had originated from an akinetoplastic strain of *T. evansi* produced by such mutation.

Eyles, D. E. (1952). **Incidence of** *Trypanosoma lewisi* **and** *Hepatozoon muris* **in the Norway rat.**—*J. Parasit.* **38,** 222-225. **3115**

T. lewisi was observed in 13·2% of 220 wild Norway rats and the incidence was significantly higher in winter than in summer. *Hepatozoon muris* was found in 4·5% of the same group of rats, with no seasonal difference.

—Jas. G. O'Sullivan.

Kradolfer, F. (1954). **Experimental vaginal infection of hamsters with** *Trichomonas foetus.*—*Exp. Parasit.* **3,** 1-8. **3116**

Hamsters are susceptible to intravaginal infections by *Tr. foetus* which may persist for 105 days. The parasites are demonstrable in smears and by cultivation in a suitable medium.

—D. Poynter.

Fiévez, L. (1953). Considérations cliniques au sujet de la trichomoniase du pigeon voyageur. **[Clinical aspects of trichomoniasis in pigeons.]**—*Ann. Méd. vét.* **97,** 438-447. **3117**

In some 50 pigeon lofts infected with trichomonads, up to 80% or more of the birds were found to be carriers of the infection. In adults trichomoniasis is sometimes characterized by enteritis, but always by marked depression; nestling squabs show necrotic patches in the intestine, liver, and umbilicus, whilst in older squabs enteritis and thirst are pronounced but mortality is low. Of 5 drugs tested for efficacy in treatment, enheptin (2 amino-5-nitrothiazole) proved the most satisfactory.—M. L. Clarke.

Déom, J. & Mortelmans, J. (1954). Essai thérapeutique de la coccidiose du porc par la nitrofurazone. **[Nitrofurazone in treatment of coccidiosis in pigs.]**—*Ann. Méd. Vét.* **98,** 82-86. [English summary.] **3118**

The authors treated 2 cases of *Eimeria debliecki* infection in pigs weighing approx. 35 kg. with nitrofurazone, administered in the food at a conc. of 0·44%. Both pigs recovered after 7 days of treatment, during which each had consumed a total of 12·5–15 kg. of food containing 500–600 g. nitrofurazone.—R.M.

Guilhon, J. & Provost, A. (1953). Un nouveau parasitisme, du porc, en France. **[Piroplasmosis recorded in pigs in France.]** —*Bull. Acad. vét. Fr.* **26,** 449-450. **3119**

An account of the first reported case in France of piroplasmosis of pigs, caused by a species of *Babesia*. Exact determination of the parasite was not possible.—J.D.

Rossi, P. & Demeusois, P. (1952). Anaplasmose bovine. **[Bovine anaplasmosis in France.]** — *Bull. Acad. vét. Fr.* **25,** 343-347. **3120**

An account of an epizootic of anaplasmosis in French indigenous cattle. Transmission occurred naturally [vectors not stated] and also through F. & M. disease prophylaxis. The authors gave a short account of the course of the disease together with general considerations. [For results of laboratory examinations, see *V.B.* **24,** 2313.]—J.D.

Newberne, J. W. (1953). **Toxoplasmosis in dogs in Alabama.**—*Auburn Vet.* **10,** No. 1. 35-38. **3121**

Toxoplasma gondii produces a disease of

sudden onset and short course. Lesions include focal necrosis of intestine, liver and spleen, enlargement and haemorrhage of lymph nodes and an atypical pneumonia.—D. POYNTER.

EYLES, D. E. (1952). **Toxoplasma in the Norway rat.**—*J. Parasit.* **38,** 226-229. **3122**

E. examined 100 brown rats (*R. norvegicus*) by subinoculation of brain tissue into mice, and recovered *Toxoplasma* in one case. Eighteen pools of 5 rat brains each, were inoculated into g. pigs and 5 infections resulted. The Sabin-Feldman dye test was unreliable in the rats.
—JAS. G. O'SULLIVAN.

OTTEN, E. (1953). Vergleichende Untersuchungen über das serologische Verhalten des Sabin-Feldman-Farbtestes zur Toxoplasmose-Komplementbindungsreaktion nach Westphal. [**Comparison of the Sabin-Feldman test with the complement-fixation test described by Westphal for *Toxoplasma* infection.**]—*Z. Hyg. InfektKr.* **136,** 133-140. **3123**

The author compared the results obtained using the c.f. test described by Westphal [*V.B.* **22,** 3330] and the Sabin-Feldman dye test with 1,284 human sera submitted for the diagnosis of toxoplasmosis. The results agreed in 75·4% of the tests.—R.M.

KUNERT, H. & SCHMIDTKE, L. (1954). Zum Nachweis der Toxoplasmainfektion im Tierversuch. [**Diagnosis of *Toxoplasma* infection.**]—*Z. Tropenmed. u. Parasit.* **5,** 58-61. [English abstract modified.] **3124**

Material containing *T. gondii* was kept either at +56°C. for half an hour, at +4°C. for 16 days, or at −18°C. for 24 hours. Then it was repeatedly injected to g. pigs and white mice. Most of the surviving animals developed positive Sabin-Feldman reactions of varying titres although the presence of living toxoplasms was never demonstrable. It is concluded that a positive Sabin-Feldman test is not necessarily caused by infection with live parasites but may also be the result of an antigen-antibody reaction.

CHERNIN, E. (1952). **The epizootiology of *Leucocytozoon simondi* infections in domestic ducks in northern Michigan.**—*Amer. J. Hyg.* **56,** 39-57. **3125**

Observations were made on *L. simondi* infection in ducks in an infected area in Michigan during three years and it was found that there was a well defined seasonal incidence associated with the period of activity of the vectors, *Simulium* spp. Immunity was not related to the age of the ducks, but to previous infection. Mortality was much higher in ducks brought into the infected areas than in those bred locally.—F. T. W. JORDAN.

D'AGOSTINO BARBARO, A. (1953). Modificazioni della fauna protozoaria del rumine di *Capra hircus* L., in gravidanza. [**Changes in the protozoan fauna of the rumen of goats during pregnancy.**]—*Boll. Soc. ital. Biol. sper.* **29,** 956-959. **3126**

The author examined rumen contents from 3 pregnant goats and one non-pregnant goat. The number of ciliated infusoria rose from about 800 per ml. rumen contents at the commencement of pregnancy to about 2,000 per ml. at full term. Differences in morphology and occurrence of some species were noted.—R.M.

MASSON, M. J., IGGO, A., REID, R. S. & MANN, G. F. (1952). **Galvanotropic fractionation of rumen ciliates.** — *J. R. micr. Soc.* **72,** 67-69. **3127**

By means of galvanotropism the authors separated the protozoa present in strained rumen contents from sheep into three groups—isotrichs, large oligotrichs, and small oligotrichs. They discussed the applications of this method to the study of microbiology of the rumen.
—R.M.

TURNER, H. J., JR. (1954). **An improved method of staining the external organelles of hypotrichs.**—*J. Protozool.* **1,** 18-19. [Author's summary modified.] **3128**

T. described a simple, rapid method of staining the external organelles of hypotrichous ciliates. Specimens are fixed and stained with Noland's combined phenol-formaldehyde, gentian violet fixative and stain. The staining soluton is displaced with iodized glycerol as soon as the external structures are stained to prevent it from colouring the cell body. Cirri and membranelles stain jet black in sharp contrast to the clear amber background.

See also absts. **3391** (report, Nigeria); **3392** (report, Gold Coast); **3393** (report, Jamaica); **3398** (book, parasites of the blood).

DISEASES CAUSED BY VIRUSES AND RICKETTSIA

TRAUB, E. & CAPPS, W. I. (1953). Versuche mit einem an Hühnerembryonen adaptierten O-Stamm des Maul- und Klauenseuche-Virus. [**Experiments with a Type O foot and mouth disease virus adapted to fowl embryos.**]—*Mh. Tierheilk.* **5,** 301-316. **3129**

After 270 consecutive passages through hen's eggs, O type F. & M. disease virus was

non-pathogenic for cattle, but still produced typical generalized F. & M. disease in pigs and g. pigs. It appeared that the virus must come abundantly in contact with chorio-allantoic ectoderm to infect the embryo.

The virus concentration was highest in the embryo and lowest in the yolk-sac. No viral growth was apparent in embryonic muscle.

The best results for increase of virus and life of the eggs were obtained by injection of small amounts of virus after the 9th and 10th days of incubation. Eggs from different breeds gave varying results, and also from different hatcheries. The best breed was Black Minorca.

Ultracentrifugation showed that the infective agent in infected eggs was the same as the immunizing antigen, and that lower molecular complement-fixing material had no immunizing properties.

This egg-adapted type was serologically and immunologically different from the pigeon-adapted O_2 type and could not be used in pigeons.—R. B. Holcombe.

Pyl, G. (1953). Die Prüfung von Alminiumhydroxyd auf seine Eignung für die Maul- und Klauenseuchevakzine. [**Testing of the suitability of samples of aluminium hydroxide for the preparation of foot and mouth disease vaccine.**]—*Arch. exp. VetMed.* **7,** 9-17. **3130**

Although a sample of aluminium hydroxide of unknown preparation may possess satisfactory adsorptive ability its suitability for efficient vaccine production should be tested on g. pigs. Acid hydroxides (pH below 5) are unsuitable, but ammonium sulphate improves the action of the vaccine without influencing the adsorption. $Al(OH)_3$ must be autoclaved at once or the vaccine, which is active at first, soon loses its immunizing activity.

—W. G. Siller.

Girón, A. T. (1952). Antisueros específicos en el suero de bovinos convalecientes de estomatitis vesicular y fiebre aftosa, revelados por medio de la prueba de inhibición de la fijación del complemento. [**Complement fixation tests for vesicular stomatitis and foot and mouth disease antibodies in convalescent sera.**]—*Gac. Vet., B. Aires.* **14,** No. 75. pp. 8-24. [Abst. from English summary.] **3131**

Using a complement fixation test G. tested for specific antibodies in the serum of cattle which were convalescing from, or had recovered from, vesicular stomatitis and experimental F. & M. disease. In the early months of convalescence specific antibodies were detected and it was possible to identify the virus used in inoculation, but later results were less clear, and in a number of cattle which had had F. & M. disease 9–12 months before the test it was impossible to identify the virus type used.—A.S.

Tarlatzis, C. B. [K. V.] (1954). Un cas de rage pruriginèuse chez la chèvre. [**A case of rabies in a goat with very marked skin irritation.**]—*Ann. Méd. Vét.* **98,** 87-89. **3132**

T. described an illness in a goat in Greece, which commenced with intense pruritus confined to symmetrical areas on each flank, and terminated with ascending paralysis. No Negri bodies were seen in the hippocampus. In order to differentiate between rabies and Aujeszky's disease, he inoculated a rabbit and 2 g. pigs intracerebrally with brain suspension. These animals died from rabies.—R.M.

Missfeldt, H. & Höve, K. R. (1953). Die Tollwut und ihre Bekämpfung im Lande Schleswig-Holstein. [**Incidence and control of rabies in animals in Schleswig-Holstein.**]—*Mh. Tierheilk.* **5,** 369-377. **3133**

A short review of the incidence of rabies in Schleswig-Holstein, with a critical review of the methods used to control rabies, especially in foxes and badgers.—R. B. Holcombe.

Nikolitsch, M. (1954). Über die Ätiologie der Paralysen im Anschluss an antirabische Impfung. [**Aetiology of paralysis following anti-rabic immunization.**] — *Z. Tropenmed. u. Parasit.* **5,** 23-27. [Abst. from English summary.] **3134**

Of 11 rabbits vaccinated against rabies, 6 were given insulin shock treatment 10 days later and two of these developed ascending paralysis resembling the palsy seen in human beings after anti-rabic treatment. N. suggested that the endotoxins of fixed virus have a damaging effect on certain cells of the nervous system which predisposes them to paralysis. This opinion is supported by UNO statistics showing that only certain predisposed groups of a population are liable to suffer nervous disorders after antirabic treatment while others remain free.

Fazekas de St. Groth, S. (1952). **Nasal mucus and influenza viruses. I. The haemagglutinin inhibitor in nasal secretions. II. A new test for the presumptive diagnosis of influenza infection.**—*J. Hyg., Camb.* **50,** 471-490; 491-501. **3135**

I. The author described a method for detecting minimal changes in haemagglutinin inhibitors in nasal mucus, utilizing the inhibitor index.

II. In the acute phase of influenza infection there is sufficient virus in the upper parts of the respiratory tract to produce measurable enzymic degradation of nasal mucus. Estimation of the inhibitor index of nasal secretions is an objective test for influenza virus infection; it is easy, inexpensive, rapid, and applicable to the acute phase of the disease.—W. R. BETT.

NETZER, F. (1952). Vorkommen, Verbreitung, Ätiologie und Klinik der Borna'schen Krankheit im Landkreis Pfaffenhofen a.d. Ilm in den Jahren 1950-1952. **[Incidence, aetiology and clinical picture of Borna disease in the Pfaffenhofen district, Bavaria, during 1950-52.]**—*Inaug. Diss., Munich.* pp. 37. **3136**

Most of the outbreaks of Borna disease in horses in the Pfaffenhofen district of Bavaria occurred in farms in the vicinity of an initial outbreak, and in farms with bad hygiene. No relationship could be found between the incidence of the disease and geographical conditions, extent of worm infestation, breed of horse, or contact with sheep at pasture.—H. BEHRENS.

AUMONIER, F. J. (1952). **Structural changes in the skeletal muscles of suckling mice following infection with a Coxsackie virus of the "A" group (var. Swiss).**—*J. R. micr. Soc.* **72,** 218-222. [Author's synopsis modified.] **3137**

The author described the changes produced by a particular strain of Coxsackie virus in the skeletal muscles of unweaned mice. These were: loss of striations, swelling of the myofibrillae, localized oedema, loss of all internal structure with generalized oedema, and finally regeneration if the animal survived.

TANAKA, Y. (1953). Prévention et éradication de l'anémie infectieuse du cheval au Japon. **[Control of equine infectious anaemia in Japan.]** — *Bull. Off. int. Epiz.* **39,** 724-749. **3138**

T. traced in detail the development of legislative measures for the control of equine infectious anaemia in Japan from 1909 to 1953.

—A.S.

TANAKA, Y. (1953). Communication sur l'anémie infectieuse en général. **[Control of equine infectious anaemia in Japan.]**—*Bull. Off. int. Epiz.* **39,** 721-723. **3139**

An investigation over the years 1948-50 revealed that equine infectious anaemia was widespread throughout Japan, and in 1951 a five-year plan aiming to slaughter every horse suspected of harbouring the disease was started. In 1952 over 8,000 animals were destroyed out of the 490,000 examined. It is not thought that the campaign will result in a complete eradication of the disease, but it is hoped to keep it at a low level.—A.S.

ALTARA, I., SERRA, A. & GUARINI, G. (1953). La réaction de fixation du complément appliquée au diagnostic de l'anémie infectieuse des équidés. **[The complement fixation test in diagnosis of equine infectious anaemia.]** —*Bull. Off. int. Epiz.* **39,** 708-720. [English summary.] **3140**

Using a modified c.f. test the authors demonstrated specific antibodies in serum from horses harbouring the virus of equine infectious anaemia. Of 56 clin. cases examined 54 were positive to the test, and 2 gave uncertain results. Specific antibody was also demonstrated in the serum of apparently healthy horses shortly after inoculation with the virus, and in horses presenting chronic forms of the disease. Serum from healthy horses in areas free from the disease was uniformly negative to the test.—A.S.

VAUGHAN-JONES, T. (1953). **Notes on the rinderpest fence and cordon. (Northern Rhodesian-Tanganyika Territory Border).**—*Bull. epiz. Dis. Afr.* **1,** 286-292. [In English.] 287-293. [In French.] **3141**

The fence was erected in 1941 following a report of the disease in the area. It took the form of a wooden palisade stretching 167 miles, with a patrol of 3 men every 6 miles. These men kept the fence in repair and maintained a game free zone of 20 miles in depth by the use of the gun.

Naturally very vulnerable, the fence is costly to maintain and disbandment of the cordon is under consideration.—W. S. MARSHALL.

MARION, P. & GORET, P. (1953). Immunisation du porc contre la peste porcine. Emploi dans la pratique du virus lapinisé. **[Use of rabbit-passaged swine fever virus in the field.]** —*Bull. Acad. vét. Fr.* **26,** 509-519. **3142**

In an experiment involving about 8,000 pigs, of which over 4,000 were kept under observation until slaughter, the authors compared the results of vaccination with "Rovac" rabbit-passaged swine fever virus alone, of virus given subsequent to the injection of specific antiserum, and of virus administered simultaneously with specific antiserum. By far the best results were obtained using the simultaneous method: very few pigs were lost and they were all from one farm where a relatively small dose of antiserum had been given.

When virus was given alone, or following antiserum, some animals in some of the piggeries developed pulmonary symptoms 6–8 weeks after vaccination, and later typical swine fever. Such reactions occurred, characteristically, in premises where new animals were constantly being introduced, and were inoculated on arrival. They were rare on farms where large lots of pigs were vaccinated together, and where new stock was seldom introduced.—A.S.

GORET, P., MACKOWIAK, C., LUCAM, F. & GIRARD, H. (1953). Recherches expérimentales sur l'immunisation du porc contre la peste porcine à l'aide du virus modifié par passage sur le lapin. **[Immunization against swine fever using rabbit-passaged virus.]**—*Bull. Acad. vét. Fr.* **26,** 495-508. **3143**

In an experiment with 52 pigs weighing 20–30 kg., rabbit-passaged swine fever virus of the strain " Rovac ", whether inoculated alone or together with specific antiserum, quickly produced a solid and durable immunity. Both " Rovac " and " S.F.A.", a strain modified by rabbit-passage by Hudson [*V.B.* **23,** 3074], kept their immunizing power during further passages in rabbits: after 12 passages virus from rabbits was as effective as the original dried vaccine.—A.S.

HECKE, F. (1953). Erfahrungen mit Schutzimpfungen gegen die Ansteckende Schweinelähmung. **[Immunization against Teschen disease.]** — *Wien. tierärztl. Mschr.* **40,** 458-478. [English, French and Italian summaries.] **3144**

Following the vaccination of 31,783 pigs against Teschen disease with aluminium hydroxide adsorbate vaccine, 0·4% contracted the disease. In some districts abscesses frequently occurred at the site of inoculation, and the results were less favourable. The vaccination of pigs younger than 3 months was not recommended. Immunity developed between the first and third week after vaccination: towards the end of the second week after vaccination the incidence of the disease in herds showed a reduction of about 50% and, after the end of the fourth week, of about 80%. This decrease continued until the tenth week, after which the incidence remained unaltered for nearly 6 months. H. suggested that immunity present one year after vaccination was due to subsequent infection. Vaccinated pigs did not appear to excrete the virus.—H. BEHRENS.

BINDRICH, H. & SCHMIDT, D. (1952). Liquordiagnostik bei experimenteller Staupe des Hundes. **[Examination of the cerebrospinal fluid in the diagnosis of experimental dog distemper.]** — *Arch. exp. VetMed.* **6,** 162-174. **3145**

The authors examined c.s.f. from healthy dogs and from dogs artificially infected with distemper. Catarrhal distemper led to a slight rise in total protein and cell-count, while the nervous form of the disease led to a more marked rise. These values in the c.s.f. seemed to run parallel with the multiplication of the virus in the brain.—A.S.

BINDRICH, H. & DÉDIÉ, K. (1952). Beitrag zur Herstellung und Auswertung von Staupe-Hyperimmunserum. **[Production and evaluation of hyperimmune distemper serum.]** — *Arch. exp. VetMed.* **6,** 150-161. **3146**

The authors found that the protective action of distemper hyperimmune serum on dogs was closely related with its titre as measured in the complement-fixation reaction using ferret antigen. In the hyperimmunization of dogs for serum production the method described by Laidlaw & Dunkin [*V.B.* **1,** p. 220], in which infected material is given i/m in two injections, proved the best.—A.S.

PANKOV, V. A. (1953). **Equine hyperimmune sera against distemper.**—*Veterinariya, Moscow.* **30,** No. 5. pp. 16-19. [In Russian.] **3147**

Trials were made with serum obtained from a horse hyperimmunized with the virus of distemper. Treatment was given to 77 dogs and puppies of different ages with distemper in various stages of severity. The s/c dose was either 10 ml. repeated every second day (max. 4 doses); or 20 ml. [periods not stated]. Of the 77 treated, 5 died. Twenty-three unaffected dogs kennelled among them were injected [presumably with the same serum, dosage not given] and remained healthy.

The experiment began with artificial infection of a 6-month-old foal which developed a rise in body temp. and catarrh. The horse [age not given] also reacted initially but became completely immune to later injections of large doses of the virus.—F.A.A.

STÜNZI, H. & POPPENSIEK, G. C. (1952). Zur Pathogenese der Hepatitis contagiosa canis. I. Perakute und akute Krankheitsstadien. **[Pathogenesis of canine virus hepatitis. I. peracute and acute stages.]**—*Schweiz. Z. allg. Path.* **15,** 722-734. [English summary modified.] **3148**

42 young dogs were inoculated i/v or s/c with the virus of canine virus hepatitis. After

an incubation period of 2 days (i/v infection) or 4–5 days (s/c infection) 16 animals died on the 1st–3rd day of disease; the remaining 26 animals were destroyed. In 20 dogs of the latter group a fluctuating or diphasic type of fever, with a short afebrile or subfebrile interval was observed. The rises in temperature were accompanied by marked leucopenia, and were followed by a post-febrile leucocytosis, particularly lymphocytosis. In the prefebrile stage, a moderate leucocytosis was often observed.

Nuclear inclusions were most numerous in dogs which were examined histologically at the onset of the first or second febrile attack. The virus is primarily endotheliotropic and invades secondarily the liver cells which are damaged as a result of capillary lesions. The authors suggested that the moderate changes in the kidneys in acute cases are due to disturbances of the circulation and of hepatic function.

CABASSO, V. J., STEBBINS, M. R., NORTON, T. W. & COX, H. R. (1954.) **Propagation of infectious canine hepatitis virus in tissue culture.**—*Proc. Soc. exp. Biol., N.Y.* **85,** 239-245. [Authors' summary modified.] **3149**

The authors reported the serial propagation of the virus of canine hepatitis by the roller tube method in dog kidney tissue culture through 15 consecutive passages. The growth of the virus under these conditions causes a specific cytopathogenic degeneration of the tissue growth, similar to that reported for poliomyelitis virus in the presence of human or monkey tissues. Identification of the tissue culture virus was made by both the complement-fixation and serum neutralization methods using a known canine virus hepatitis immune serum from foxes.

ANON. (1953). **Cat scratch disease and Parinaud's oculoglandular syndrome.**—*J. Amer. med. Ass.* **152,** 1717. **3150**

It is probable that the disease of human beings described by Parinaud in 1889 as the oculoglandular syndrome is a manifestation of cat scratch fever, from which it differs in that the initial lesion is conjunctivitis with granulaton, followed by regional lymphadenitis. The infection has been attributed to *Leptothrix,* but this is now considered to be a saprophyte.

—R.M.

HEDINGER, C. (1952). Die histologischen Veränderungen bei der sog. Katzenkratzkrankheit, einer benignen Viruslymphadenitie. **[Histological changes in cat-scratch fever.]**—*Virchows Arch.* **322,** 159-174. **3151**

A description of the lesions of cat-scratch fever in 19 patients, with illustrations of skin changes and characteristic developments of the lymph nodes. H. discussed the problem of differential diagnosis.—A.S.

BRION, A., BERTRAND, M. & COTTEREAU, P. (1954). Présence de corpuscles analogues aux Chlamydozoaceae dans la leucopénie infectieuse des chats. **[Presence of organisms similar to Chlamydozoaceae in infectious feline leucopenia.]**—*C. R. Acad. Sci., Paris.* **238,** 176-177. **3152**

The authors saw organisms resembling Chlamydozoaceae in stained sections of the liver in cats which had died from infectious feline leucopenia. They were not seen in other organs. Similar organisms were present in the liver in ferrets and mice which had been inoculated with virulent tissue suspension from the cats.—R.M.

JACOTOT, H. & VALLÉE, A. (1953). Le myxome infectieux du lapin dans les garennes françaises. **[Myxomatosis in wild rabbits in France.]** — *Bull. Acad. vét. Fr.* **26,** 25-33. **3153**

A short account of infectious myxomatosis of rabbits as observed in the Rambouillet region.

No explanation was given of how the virus was introduced into France.—J.D.

RAMON, G. (1953). L'épizootie de myxome infectieux du lapin en France. **[The epidemic of myxomatosis in France.]**—*Bull. Off. int. Epiz.* **39,** 588-600. [English translation pp. 601-607.] **3154**

A note on the introduction and spread of myxomatosis in France, and on the measures taken in the control campaign. R. discussed the possible dangers of using live Shope's fibroma virus to inoculate rabbits against the disease.—A.S.

RAMON, G. (1953). Considérations sur la myxomatose du lièvre et du lapin. **[Myxomatosis in hares and rabbits.]**—*Bull. Off. int. Epiz.* **39.** [In French: pp. 777-784. In English: pp. 785-792.] **3155**

In a general article on myxomatosis R. discussed possible vectors, with particular mention of crows and other carrion birds, which he considered could carry infected material over considerable distances. With reference to mosquitoes as vectors he commented that the recent epidemic in France had spread during winter and early spring when, he thought, these insects could have played no role in transmission. He discussed the dangers attending efforts to immunize rabbits against the disease

by the use of live Shope's fibroma vaccine and quoted a resolution of the XVth International Veterinary Congress, Stockholm, that preference should always be given to inactivated or killed vaccines, and that living attenuated vaccines should be used only when there is no workable alternative, and when a proper study has established the stability of the virus, and precisely determined the risks attending its use. —A.S.

LUCAS, A., BOULEY, G., QUINCHON, C. & TOUCAS, L. (1953). La myxomatose du lièvre. **[Myxomatosis in the hare.]**—*Bull. Off. int. Epiz.* **39,** 770-776. **3156**

Using infected material from a hare from the district of Grenoble and another from Le Loiret, both of which presented lesions typical of myxomatosis, the authors set up the disease in healthy rabbits, but not in healthy hares. They discussed the resistance of hares and the possibility that they might act as carriers. —A.S.

BOUVIER. (1954). Quelques remarques sur la myxomatose. Epizootie de 1949 au Brésil (Région de Campinas, Est São-Paulo). **[The epizootic of myxomatosis in Brazil in 1949.]** —*Bull. Off. int. Epiz.* **41,** 76-77. **3157**

Among the wild rabbits of Brazil (*Sylvilagus minensis*) myxomatosis occurs as an inapparent epizootic disease, but it is transmitted by mosquitoes to domestic rabbits, which are extremely susceptible. B. speculated on the possible existence of a similar relationship between the European hare (*Lepus europaeus*) and the common rabbit (*Oryctolagus cuniculus*), with regard to the disease in Europe.—A.S.

JACOTOT, H. (1953). La myxomatose ou myxome de Sanarelli. **[Myxomatosis in rabbits.]** — *Encycl. vét.* No. 9/10. pp. 229-234. **3158**

A review of spontaneous and introduced outbreaks of myxomatosis in rabbits, and a discussion on its transmission.—R.M.

NOSSAL, G. J. V. & DE BURGH, P. M. (1954). **Ectromelia virus multiplication in mouse liver.** —*J. gen. Microbiol.* **10,** 345-352. [Author's summary modified.] **3159**

The authors studied the multiplication of ectromelia virus in mouse liver cells using intravenous inocula of 10^6 to 10^{10} LD50 doses. About 30% of this virus is found in the liver in 5 min., and most of this disappears as infective virus in the next hour. After a lag period, the length of which depends on the number of LD50 doses/cell which initiated the infection, the virus titre increases again to the 5 min. level. Subsequently, steps of multiplication, each separated by a lag period occur within each cell. The efficiency of virus multiplication over the range tested was independent of the infecting dose.

KILHAM, L. & HERMAN, C. M. (1954). **Isolation of an agent causing bilirubinemia and jaundice in raccoons.** — *Proc. Soc. exp. Biol., N.Y.* **85,** 272-275. [Abst. from authors' summary.] **3160**

The authors isolated an infectious agent, which appeared to be a virus, from the liver of a wild racoon, *Procyon lotor*. On inoculation into healthy racoons it led to a highly fatal type of disease characterized by conjunctivitis and a rise in serum bilirubin frequently accompanied by jaundice. Ferrets also appeared to be susceptible.

PEREIRA, H. G. (1954). **The use of suspensions of isolated cells for the study of the factors affecting the multiplication of fowl-plague virus.** — *J. gen. Microbiol.* **10,** 500-508. [Author's summary slightly modified.] **3161**

The multiplication of fowl plague virus was studied in cultures prepared with suspensions of isolated cells of chick embryo tissues. Under favourable conditions, virus infectivity increased exponentially for 20 hours, after a latent period lasting 4–6 hours. Virus haemagglutinin production varied linearly with the number of cells added to the cultures, the regression line of this relationship showing a slope of 1 when the cell concentration was kept constant and a slope higher than 1 when the number of cells varied together with the cell concentration. Haemagglutinin production was decreased by increasing the size of the virus inoculum. A similar decrease was observed in cultures in which the depth of the fluid layer was increased. Cultures incubated at 32°C. for 2 days showed no haemagglutinin titres. The titres reached in cultures incubated at 35°, 37° and 39° did not differ significantly. Cultures kept at 37°C. maintained their capacity to support virus multiplication at an approx. constant level for at least 3 days. At 22° and at 4° this capacity decreased progressively with time of storage, the decrease being more pronounced at the lower temperature. Virus multiplication was inhibited by horse serum.

PEREIRA, H. G. & GOMPELS, A. E. H. (1954). **The growth of fowl-plague and Newcastle-disease viruses in roller-tube cultures.**—*J.*

Path. Bact. **67,** 109-115. [Authors' summary copied *verbatim.*] **3162**

The viruses of fowl plague and Newcastle disease were shown to multiply in roller-tube cultures of chick-embryo epithelial and mesenchymal tissues. Virus activity in the cultures was demonstrated by the cytopathogenic effect, by the *p*H differential test and by haemagglutinin and egg-infectivity titrations. The rate of virus production and the distribution of virus in the solid and fluid phases were studied.

LIU, C. & BANG, F. B. (1953). **An analysis of the difference between a destructive and a vaccine strain of NDV (Newcastle disease virus) in the chick embryo.** — *J. Immunol.* **70,** 538-548. [Authors' summary modified.] **3163**

Three strains of NDV (CG179, B and vaccine), differing from each other in virulence for chickens and chick embryos, multiplied equally well in the allantoic sac of embryos and attained a maximum titre about 24 hours after allantoic inoculation. This was demonstrated both by repeated sampling of the same embryo and by titrating pooled allantoic fluids from different eggs at different intervals. The results of the two methods were identical.

The virulent strain (CG179) multiplied rapidly in all tissues of the embryo and produced an early viraemia and a fulminating infection. The embryos died in less than 48 hours. In contrast, the vaccine strain gained entrance to the blood much later, and multiplied slowly in embryo tissues such as muscle, liver and brain. However the lungs of 16–17-day-old embryos were particularly susceptible to this strain of virus. The severe pneumonia was accompanied by an accumulation of a large amount of virus in this tissue.

HANSON, L. E. (1954). **Separation of Newcastle disease and infectious bronchitis viruses in mixed infections.** — *Poult. Sci.* **33,** 223-230. [Author's summary modified.] **3164**

Mixed infections of Newcastle disease virus and infectious bronchitis virus were produced in susceptible chicks and were verified by virus isolation, haemagglutination tests and cross immunity tests.

Newcastle disease virus and infectious bronchitis virus were shown to propagate simultaneously in embryonated eggs, but the action of the latter was masked by the more lethal action of the former virus.

Hyperimmune antiserums will satisfactorily neutralize Newcastle disease virus and infectious bronchitis virus in isolations from dual infections so that the presence of each virus can be demonstrated.

Chickens surviving the dual infection developed antibodies against both viruses as demonstrated by cross immunity studies and serum neutralization tests.

Infectious bronchitis virus was shown to be capable of interfering with the development of Newcastle disease symptoms in chicks inoculated with both viruses.

SUMMA, H. & BETHCKE, H. J. (1954). Der Verlauf einer Psittakoseepidemie unter besonderer Betrachtung veterinärpolizeilicher Probleme. **[The course of an outbreak of psittacosis in a German city.]**—*Mh. Tierheilk.* **6,** 1-10. **3165**

Eleven human beings and numerous birds were affected by a benign form of psittacosis in an outbreak which was traced to a bird shop where over 50% of the psittacine birds had a latent infection. Occult psittacosis appears to be widespread in Germany at present.

—W. G. SILLER.

RUBIN, H. (1954). **A disease in captive egrets caused by a virus of the psittacosis-lymphogranuloma venereum group.**—*J. infect. Dis.* **94,** 1-8. [Abst. from author's summary.] **3166**

R. reported a highly fatal epizootic in wild American and snowy egrets captured in southern Louisiana and kept in a laboratory. A virus of the psittacosis-lymphogranuloma group was isolated from eight of the birds, and proved to be identical with an agent previously isolated [*V.B.* **22,** 3401] from two snowy egrets bled in their native habitat. This agent also proved to be indistinguishable from that of Louisiana pneumonitis (Borg), which caused a severe epidemic in 1943 [*V.B.* **16,** 2003].

ACKERMANN, W. W. (1954). **Newborn pneumonitis virus (Sendai): I. Some biological aspects.** —*Fed. Proc.* **13,** 485. [Only abst. given. Abst. from abst.] **3167**

Since March 1952, an agent described as a new virus has been isolated by Japanese investigators from both human and animal sources of infection. The virus which is pathogenic for human beings and for various species of laboratory animals was reported to possess a number of interesting properties. The author reported studies on a line of this virus obtained from the original investigators at Tohoku University, Sendai; he confirmed and extended many of their observations. The virus was found to propagate after intranasal inoculation in various animals including monkeys, mice and ferrets. In the mice and monkeys, an encephalitic syndrome develops after intracerebral

inoculation. The virus grows rapidly to high titres both in the allantoic cavity of fertile eggs ($10^{9.7}$) and in the mouse lung ($10^{8.0}$). After inoculation upon the chorionic surface of the chorioallantoic membrane, visible lesions are observed. It has a haemagglutinin which acts upon fowl r.b.c., elutes spontaneously at room temperature and is quite labile. The red cell receptors for the virus are destroyed by receptor-destroying enzyme. However, ovomucin will not inhibit the haemagglutination reaction nor will the virus destroy the inhibitory action of ovomucin for influenza viruses. The possible antigenic relationship to other haemagglutinating viruses, as the influenza viruses, mumps virus, Newcastle disease virus, etc., was investigated.

SKINNER, H. H. & BRADISH, C. J. (1954). **Exposure to light as a source of error in the estimation of the infectivity of virus suspensions.** — *J. gen. Microbiol.* **10,** 377-397. [Authors' summary slightly modified.] **3168**

Experiments were made to determine whether the infectivity of virus suspensions was influenced by exposure to daylight of normal laboratory intensity or by exposure to artificial light. The infectivity of dilutions of virus suspensions held in bottles or cells was determined after exposure to light under a variety of conditions; the influence of exposure was indicated by comparison with the infectivity of control suspensions kept in darkness. The infectivity titres indicated by serial dilutions, in phosphate saline, of unfiltered fresh suspensions of egg strains of the viruses of vesicular stomatitis, influenza, Newcastle disease and fowl plague following exposure to daylight for 4 hours were 3–5 log. units lower than those indicated by the dark controls. Changes of this magnitude suggest that with these virus strains significant errors might arise in infectivity titrations if suspensions were exposed to light for much shorter periods.

Inactivation due to exposure to daylight was demonstrated in similar experiments with an egg strain of vaccinia virus, a mouse neurotropic strain of influenza virus and with g. pig strains and mouse neurotropic strains of the virus of vesicular stomatitis. Results of experiments with the virus of vesicular stomatitis indicated that inactivation by exposure to light may be eliminated almost completely by the inclusion of 10% rabbit serum in the suspending medium. Losses of infectivity increased with the duration of exposure. Filtration or storage of certain initial materials also increased the susceptibility to inactivation of virus suspensions derived from them. The infectivity of suspensions of the virus of F. & M. disease, even after filtration, was relatively stable during exposure to light.

SOBEY, W. R. (1954). **The inheritance of antibody response to tobacco mosaic virus in rabbits.**—*Aust. J. biol. Sci.* **7,** 111-117. [Author's summary modified.] **3169**

In a cross-bred population of rabbits it was found that the level of secondary antibody response to a routine injection of tobacco mosaic virus was highly heritable ($h^2 = 0{\cdot}876$, S.E. 0·09).

LÉPINE, P. & CROISSANT, O. (1953). Application de la technique histologique à la microscopie électronique. **[Histological technique for electron microscope studies of virus.]**—*Bull. Micr. appl.* **3,** 141-148. **3170**

The authors described a preparation technique which they used successfully to demonstrate viruses in various materials, including chitin, brain, liver, and tumour. They fixed living material directly in osmic acid at a pH close to its own, and embedded it in butyl methacrylate for sectioning.—A.S.

BURNET, F. M. (1953). **Virology as an independent science.**—*Med. J. Aust.* Nov. 28th. 810-813; Dec. 5th 841-845. **3171**

In the first of these lectures B. outlined the science of virology from the discoveries of Jenner, through the development of techniques of animal inoculation and the use of the chick embryo to the use of unweaned mice and tissue culture techniques.

In the second lecture he surveyed current concepts of virus multiplication, parasite-host relationship, pathogenetic mechanisms, immunology, and the evolution of viruses.

—J. H. WHITTEM.

FRASER, D. & JERREL, E. A. (1953). **The amino acid composition of T_3 bacteriophage.**—*J. biol. Chem.* **205,** 291-295. **3172**

Ion exchange chromatography, giving reproducible results, revealed a constant amino-acid composition when the carbon and nitrogen sources of the host were varied.—A. SEAMAN.

GERMER, W. D. & GLOKNER, B. (1953). Epidemiologische Q-Fieberstudien in Württemberg-Hohenzollern. **[Epidemiology of Q fever in Württemberg-Hohenzollern.]** — *Z. Hyg. InfektKr.* **138,** 56-65. **3173**

The authors examined the sera of 1000

cattle and 66 sheep for Q fever antibodies by the c.f. test: 10·1% of the cattle and 19·7% of the sheep sera were positive. The proportion of positive reactions was higher in areas where epidemics of Q fever had been diagnosed in human beings.—R.M.

VEERARAGHAVAN, N. & SUKUMARAN, P. K. (1954). **Q fever survey in the Nilgiris and Coimbatore districts of the Madras State.**—*Indian J. med. Res.* **42**, 5-7. **3174**

The results of a survey in the Nilgiris and Coimbatore Districts of the Madras State indicated that Q fever is prevalent in these areas.

GIROUD, P., GAILLARD, J.-A. & ROGER, F. (1952). Les mutants au cours des rickettsioses expérimentales: évolution vers des caractères murins de souches sélectionnés de *Rickettsia conori*. **[Mutation in the course of experimental *Rickettsia* infections.]**—*C. R. Acad. Sci., Paris.* **235**, 988-989. **3175**

After passage of *R. conori* in mouse lung tissue or in fowl embryos, the authors observed changes in the morphology and antigenic properties of the organisms.—R.M.

See also abstr. **3224** (a virus factor in canine leucosis); **3391** (report, Nigeria); **3392** (report, Gold Coast); **3393** (report, Jamaica).

IMMUNITY

BUXTON, A. (1954). **Antibody production in avian embryos and young chicks.**—*J. gen. Microbiol.* **10**, 398-410. [Author's summary modified.] **3176**

The inoculation of killed *Salmonella pullorum* into the developing chick embryo on or after the 17th day of incubation or of live *S. pullorum* into young chicks evoked no immediate antibody response. Approx. 20–40 days after hatching, however, agglutinins and non-agglutinating antibodies were sometimes detected in the sera of these chicks. Maximum antibody production did not occur until the chicks were approx. 100 days old. The i/v inoculation of killed *S. pullorum* into developing embryos on or before the 15th day of incubation stimulated the production of practically no demonstrable antibody by the chicks during approx. the first 80 or 100 days after hatching. These chicks showed a marked decrease in capacity to produce demonstrable antibodies in their sera after subsequent oral infection with *S. pullorum*.

B. suggested that these findings support Burnet's adaptive enzyme theory. He suggested that the introduction of antigenic material into the embryo under suitable experimental conditions enables the host cells to become adapted to the antigen, resulting in a diminished antibody response by the host, during post-embryonic life, to a subsequent challenge with similar antigenic material.

GIRARD, K. F. & MURRAY, E. G. D. (1954). **The presence of antibody in macrophage extracts.**—*Canad. J. Biochem. Physiol.* **32**, 14-19. **3177**

In a secondary response to gum arabic-beef extract injection, rabbits produced an exudate rich in monocytes. Antibody concentration was higher within the cell than in the supernatant fluid or blood plasma.—THOMAS MOORE.

TALMAGE, D. W. & DIXON, F. J. (1953). **The influence of adjuvants on the elimination of soluble protein antigens and the associated antibody responses.**—*J. infect. Dis.* **93**, 176-180. **3178**

Fifty per cent. of the dose of water-in-oil emulsions of soluble protein antigens remained at the site of inoculation in rabbits after 14 days, producing a high, prolonged antibody response. With alum-precipitated preparations or saline solutions, little remained after 2 days, and the antibody response, though high, was transient.—J. E. SMITH.

SEVAG, M. G. (1954). **The protein molecule as a multicatalytic entity. (Molecular, species, enzymatic, antigenic, toxic, etc., specificities.)**—*Ergebn. Hyg. Bakt.* **28**, 424-448. [In English. Author's summary modified.] **3179**

The protein molecule has been considered as a multicatalytic entity manifesting molecular, species, enzymatic, antigenic, toxic, etc., specificities.

Antigenicity as a catalytic process is considered a manifestation of the catalytic activities of certain centres present in the protein molecule, before they are parenterally introduced on to the mammalian system. These centres are thought to be the seats which govern not only the physiological functions exercised in the native environment but also the equally specific extrinsic antigenic and other types of behaviour. These would appear to be capable of explaining the " sameness " in or the parallelism with the enzymatic and antigenic specificities as emanating from a single source in the

protein molecule. In other words, these considerations would appear to be capable of implicating the catalytically active groups as determinant centres of the antigenic specificity of a simple protein molecule.

S. suggested that the enzyme-antienzyme reactions occupy a position of primary importance in immunology. The presence of a combining site in the antibody molecule which can specifically block the enzymatic activity indicates that the inhibitory reactive groups in the antibody molecule must have been produced not necessarily in response to the enzymatic activity *per se* but in direct response to the catalytic forces underlying or governing this enzymatic activity or in accordance with the configuration of these catalytically active centres in the protein molecule.

The inhibition of the enzymatic activity of atomic groupings by specific anti-enzyme groups in the antibody molecule would naturally result in a competitive inhibition of the contact between the enzymatic groups and the specific substrate. Various data on enzyme-antienzyme reactions and specially, a comprehensive study of phosphatase-antiphosphatase reaction show that enyme-antienzyme reactions are competitive and the competition is between the specific substrate and specific antienzyme for the enzyme antigen. This competition is highly specific. Immune processes might therefore be considered comparable to a large number of processes showing biological antagonism.

HANAN, R. & OYAMA, J. (1954). **Particle size of antigen in relation to antibody-suppressive effect of cortisone.**—*Proc. Soc. exp. Bio., N.Y.* **85,** 373-375. [Authors' summary modified.] **3180**

Rabbits were immunized with either bovine serum albumin conjugated with p-bromophenylisocyanate or with similarly conjugated human red cell stroma. Half the rabbits in each group were treated with cortisone. Antibody was measured with a p-bromophenylureido-protein other than the one used for immunization. Cortisone reduced antibody production to the conjugated bovine serum albumin, but had little or no effect on antibody produced to the conjugated stroma.

REBUCK, J. W. & MELLINGER, R. C. (1953). **Interruption by topical cortisone of leukocytic cycles in acute inflammation in man.**—*Ann. N.Y. Acad. Sci.* **56,** Art 4. pp. 715-732. (117 refs.). **3181**

The authors described a technique for studying leucocytosis *in vitro* in human beings. Inflammation of a small area of skin was provoked by applying diphtheria toxin after the epithelium had been scraped away. Cover slips were placed in succession in contact with the lesion, after which each cover slip was dried, stained, and examined microscopically.

After the application of cortisone to such lesions the proportion of lymphocytes was reduced and phagocytosis was depressed, as compared with untreated controls. They reviewed the literature on the impairment of cellular defence mechanisms by cortisone, A.C.T.H., and similar compounds.—R.M.

MITCHISON, N. A. (1954). **Passive transfer of transplantation immunity.** — *Proc. R. Soc.* Ser. B. **142,** 72-87. [Author's summary modified.] **3182**

The time necessary for the breakdown of a lymphosarcoma is measured in a stock of genetically uniform non-susceptible mice for different lengths of time, the grafts then being transplanted into susceptible mice to test their viability. If the non-susceptible mice are immunized by previous inoculation with the tumour, the breakdown time is considerably accelerated. The breakdown time of the tumour is then tested in non-susceptible mice which have received various tissues from immunized mice of the same stock. By this test, serum, peritoneal exudate and lymphocyte suspensions from immunized animals do not confer immunity, nor is immunity transferred from immunized females to their offspring. Immunity is, however, transferred by grafts of lymph nodes from immunized animals: M. showed that this transfer is genuinely passive. The power to transfer immunity lasts only a short time following implantation of the tumour, and is confined to the nodes draining the site of implantation.

See also absts. **3009-3010** (anthrax); **3034-3038** (TB.); **3040** (ulcerative lymphangitis); **3042** (mallein); **3056** (immunogenic properties of *S. typhi-murium* in sheep); **3057** (pullorum disease); **3059** (antigenic variation of *S. pullorum*); **3067-3070** and **3073-3074** (brucellosis); **3087** (agglutination titre and presence of leptospira in hamsters); **3094** (avianized *V. fetus* vaccine); **3108** (bovine contagious pleuropneumonia vaccine); **3113** (preparation of water-soluble *Trypanosoma* antigens); **3129-3131** (F. & M. disease); **3133-3134** (rabies); **3135** (influenza); **3142** (swine fever); **3144** (Teschen disease); **3146-3147** (distemper); **3154-3155** (myxomatosis); **3163** (Newcastle disease); **3197-3199** (*Trichinella*); **3213** (helminths).

PARASITES IN RELATION TO DISEASE [GENERAL]

ROBERTS, F. H. S. (1952). **Host specificity of livestock parasites in Australia.** [Presidential address.]—*Rep. Aust. Ass. Adv. Sci.* **29,** 247-257. **3183**

R. discussed host specificity among the representatives of the fleas, lice, flies, mites, ticks, trematodes, cestodes, nematodes and protozoa which infest domestic animals in Australia. There has been comparatively little interchange of parasites between domesticated and wild indigenous animals. Only four parasites of indigenous animals have found suitable hosts among domesticated animals and have become important pests. These are: *Ixodes holocyclus*, which causes tick paralysis, *Heterodoxus longitarsus*, the kangaroo louse which infests dogs, the sand fly *Austrosimulium pestilens* which is a severe pest of cattle, sheep and horses, and the black soil itch mite *Trombicula sarcina* which causes serious leg lesions in sheep.—H. McL. Gordon.

PARASITES IN RELATION TO DISEASE [ARTHROPODS]

du Toit, R., Kluge, E. B. & Fiedler, O. G. H. (1952). **Tsetse fly eradication campaign : Zululand, Union of South Africa. Progress report : from June 1950.** — *Bur. interafr. Tsetse.* I.S.C.T.R. (52). No. 15. pp. 9. [Mimeographed.] **3184**

The eradication campaign since 1948 in Zululand [*V.B.* **19**, 240] consisted of the application of benzene hexachloride smoke from aircraft on to the permanent breeding habitats of *G. pallidipes*, *G. brevipalpis* and *G. austeni*. The results were assessed by the use of bait cattle and fly traps. A substantial reduction in the tsetse-fly population was achieved, and it is hoped that *G. pallipides* and *G. brevipalpis* will have been completely eradicated from two game reserves, which were both extensive breeding areas for the flies, by March 1953.

—D. W. Jolly.

Nash, T. A. M. & Page, W. A. (1953). **The ecology of *Glossina palpalis* in Northern Nigeria.**—*Trans. R. ent. Soc. Lond.* **104**, 71-169. **3185**

An account of a detailed ecological study. The authors demonstrated the persistence of a favourable micro-climate, and found a seasonal correlation with the incidence of human and bovine trypanosomiasis. They determined the range of individual flies, studied their longevity and estimated their expectation of life. There is a seasonal fluctuation in fly density. The cold dry season should be the safest for cattle in *G. palpalis* areas. The infection rate in *G. palpalis* reaches a peak in heavy rains during the hot season. The authors discussed the timing of control methods and the creation of habitats which should prevent travel by the fly within the ecoclimate (the micro-climate best suited to the ecology of the fly). They gave photographs of favourable and unfavourable permanent and temporary habitats.

—D. Poynter.

Götze, R. & Strütt, O. (1952). Bekämpfung der Kriebelmücke durch Sprühmittel. **[Control of *Simulium* by spraying.]**—*Dtsch. tierärztl. Wschr.* **59**, 69-71. **3186**

The authors recommended the spraying of all cattle and horses, with a 1% D.D.T. preparation or a 1:2000 γ-isomer benzene hexachloride preparation, before turning them out to pasture in *Simulium*-infested areas. The spraying should be done under high pressure against the lie of the hair.—M. L. Clarke.

Jolly, D. W., Stones, L. C., Page, K. W. & Brander, G. C. (1953). **The use of the newer insecticides for the control of sheep tick, *Ixodes ricinus*.**—*Vet. Rec.* **65**, 131-137. **3187**

A review of some field trials concerning the effectiveness of certain insecticides against *I. ricinus* infestations of adult sheep. Groups of sheep were exposed to tick infestation after dipping or spraying and were examined periodically after treatment. Benzene hexachloride (B.H.C.) in a wash concentration of 0·065% γ-isomer gave a good kill and reasonable protection against re-infestation. At a 4 times greater conc. the protection was substantially improved. D.D.T. was less extensively tested and within the limits of the tests employed gave comparable results. Toxaphene was less effective.

The degree of infestation significantly influenced the degree of protection achieved. With a severe initial infestation the residual protection was less durable than where the initial infestation was moderate or slight. The application of small amounts of more concentrated insecticide to the preferred sites of the tick (" selective spraying ") was economical and gave results nearly as good as those obtained by dipping, but the method was too slow and laborious for use under practical farming conditions. The use of a cationic wetter with B.H.C. and D.D.T. formulations appeared to result in the deposition of greater amounts of insecticide on the skin, wool and hair of the animals, but such preparations were unsuitable for dipping and only of value when a non-returnable spray method is used.—A.S.

BALDONI, A. (1953). Nuovo metodo di cura rogna demodettica cane per via parenterale. **[Parenteral treatment of demodectic mange in dogs.]**—*Veterinaria, Milano.* **2,** No. 2. pp. 4-6. [English and French summaries.] **3188**

B. claimed good results for the treatment of demodectic mange in 5 dogs by the i/m injection of 0·3–0·6 g. arsphenamine (arsenobenzol) in aqueous solution, and 0·1–0·2 g. metallic bismuth in oily suspension, 8 doses of the former and 5 doses of the latter being given at intervals over a period of 20 days. He referred to the statement of Canepa & Da Graña (1946) that they had demonstrated *Demodex* and their eggs in the blood of affected dogs, and he was unable to confirm this work.—R.M.

TAGLIA, L. (1953). Sequalazione di una nuova parassitosi della nutria (*Myocastor coypus*). **[A skin disease of nutria caused by mites.]** —*Boll. Soc. ital. Biol. sper.* **29,** 1754-1756. **3189**

An outbreak of a skin disease amongst 600 nutrias, characterized by thinning of the hair and tuft formation, was associated with the presence of mites, which had not yet been identified. The disease was controlled by bathing the nutria in benzene hexachloride aqueous suspension.—R.M.

See also absts. **3077** (tularemia in ticks); **3398** (book, ticks); **3399** (Yearbook of Agriculture, U.S.A.).

PARASITES IN RELATION TO DISEASE [HELMINTHS]

I. CÔDO, V. (1953). Dosagem da amilosúria em bovinos parasitados pelo *Euritrema coelomaticum.* **[Pancreatic amylase in the urine of cattle infested with *E. coelomaticum*.]**—*Ceres, Minas Gerais.* **9,** 202-209. [English and German summaries.] **3190**

II. CÔDO, C. (1952). Teste cutâneo para diagnóstico da euritrematose em bovinos. **[Skin test for the diagnosis of *Eurytrema coelomaticum* infestation in cattle.]** — *Ibid.* 132-138. [English and German summaries.] **3191**

I. *Eurytrema coelomaticum* is a common trematode parasite of the pancreas of cattle in Brazil. In an attempt to find a diagnostic test, C. examined the pancreatic amylase content of the urine of 65 cattle, but this bore no relationship to infestation with *E. coelomaticum.*

II. C. described a test employing antigen prepared from *E. coelomaticum,* injected s/c at the base of the tail in cattle. In 70 cattle tested, there was a close relationship between positive reaction to the test and the presence of the trematodes in the pancreas.—R.M.

CARTA, A. (1953). Dermatite papulare da cercarie di *Schistosoma bovis* nell'uomo. **[Dermatitis in human beings caused by cercariae of *S. bovis*.]**—*Boll. Soc. ital. Biol. sper.* **29,** 1936-1938. **3192**

C. observed an eruption of the skin of the legs and arms of human beings in parts of Sardinia, including two assistants who had collected snails for examination for cercariae. Forty-seven per cent. of the snails, *Bulinus contortus,* examined harboured cercariae, the majority of which proved to be those of *S. bovis.* He reproduced the skin disease by applying to the arm an aqueous suspension of these cercariae obtained from snails.—R.M.

LUTTERMOSER, G. W. (1954). **Studies on the chemotherapy of experimental schistosomiasis. I. A method for detecting schistosomacidal activity based on response of *Schistosoma mansoni* infections in mice to fuadin therapy.**—*J. Parasit.* **40,** 130-137. [Author's summary modified.] **3193**

L. described a simplified method of screening compounds for schistosomacidal activity, based on the response of young mice given potentially lethal infestations of *S. mansoni* to therapy with stibophen (fuadin).

Increased survival time of treated animals and the presence of dying or dead *S. mansoni* in the liver were shown to be reliable criteria of activity.

The efficiency of the screening technique described was confirmed by the detection of the activity of additional compounds which have chemotherapeutic value in human or experimental schistosomiasis.

DEIANA, S. (1953). L'infestione del *Bulinus contortus* da cercarie di *Schistosoma bovis* (Sonsino, 1876) e del *Paramphistomum cervi* (Schrank, 1790) in diverse stagioni dell'ano. **[Infestation of the snail, *B. contortus,* with cercariae of *S. bovis* and *P. cervi* at different times of the year in Sardinia.]**—*Boll. Soc. ital. Biol. sper.* **29,** 1939-1940. **3194**

In Sardinia, infestation of the snail *B. contortus* with the cercariae of *S. bovis* and *P. cervi* was observed from June to October. The peak of infestation occurred in August.—R.M.

ANON. (1954). **Excreta from trains.** [Correspondence.] — *J. Amer. med. Ass.* **154,** 102. **3195**

In a letter to the editor the author stated

that the incidence in cattle of the cystic stage of the beef tapeworm, *Taenia saginata* of man seems to be higher in the New York region than in the more western regions with which he was familiar. It was difficult to explain the higher incidence by any peculiar customs of the farmer in New York, whose sanitary conditions and habits seem to be better than those in many other areas in the U.S.A.

He stated that trains tend to run in valleys and that the flat land in those valleys is often used by the dairy industry; the cattle are pastured along the rights of way along railways and feed is cut from those areas. He discussed whether the railway may be a mechanism in the spread of *T. saginata* from man to cow. He argued that in some circumstances (Pullman trains arriving in morning at a town) much defaecation may occur from trains in such circumstances and the area be heavily infested. Train employees (*e.g.* drivers) do not have sanitary provision.

BIONDO, G. (1954). Osservazioni sulla composizione del latte delle vache con echinococcosi. [**Abnormalities of the milk of cows with *Echinococcus cysts*.**]—*Atti Soc. ital. Sci. vet., Cortina d'Ampezzo,* 1953. **7,** pp. 258-261. [English and French summaries.] **3196**

Following the work of Piana [*V.B.* **24,** 149], B. described abnormalities in the viscosity and protein and fat content of the milk of 17 cows in which echinococcus cysts were found at slaughter.—R.M.

I. ZAIMAN, H. (1953). **Studies on the nature of immunity to *Trichinella spiralis* in parabiotic rats. I. A preliminary study of the immune response of the " uninfected " rat as determined by observation of the intestinal phase.** —*Amer. J. Hyg.* **57,** 297-310. **3197**

II. ZAIMAN, H., OMI, G. & GAPINSKI, L. (1953). **Studies on the nature of immunity to *Trichinella spiralis* in parabiotic rats. II. A preliminary study of the immune response of the " uninfected " rat as determined by observations of muscular invasion.**—*Ibid.* 306-310. **3198**

III. ZAIMAN, H. & RUBEL, J. (1953). **Studies on the nature of immunity to *Trichinella spiralis* in parabiotic rats. III. The immune response in parabiotic rats surgically separated from their mates five days after one member of the experimental pairs received an immunizing dose of *Trichinella spiralis*.**—*Ibid.* 311-315. **3199**

I & II. When one member of a pair of parabiotic rats [rats surgically united parabiotically so as to form a common abdominal cavity (" Siamese twins ")] was given a single immunizing dose of *T. spiralis* larvae, that member was usually resistant to a challenge dose of larvae given a month later. The resistance of the non-immunized twin to such challenge was considerably greater than that of parabiotic controls of which neither member had been immunized.

III. The authors reported 3 small experiments in which parabiotic rats were surgically separated from their mates, 5 days after one member of each experimental pair had been given an immunizing dose of *T. spiralis* (15 larvae per g. body wt.). One month later all were given a challenge dose of 5 larvae per g. body wt. In each experiment the non-immunized member of the experimental pairs was more resistant to the challenge dose than were controls.—F.E.W.

MILLER, W. C. (1953). **Some aspects of the control of parasitic worms in horses.**—*J. R. Army vet. Cps.* **24,** 1-5. **3200**

M. grouped the parasitic worms of horses under (1) those of usually low clinical significance, (2) clinically significant but not usually lethal types, and (3) clinically dangerous species. If the young animal up to 12–15 months of age can be protected against exposure to heavy infestation and fed a really good diet, the development of age resistance will protect it later except against exposure to the heaviest infestations. He discussed treatment with phenothiazine and emphasized certain disadvantages, *e.g.* that *Str. vulgaris* often survives such treatment. He recommended the use of glucarsamide as a follow-up treatment. [*Oesophagostomum,* listed under the second group, is undoubtedly a misprint for *Oesophagodontus.*]
—JAS. G. O'SULLIVAN.

WEINSTEIN, P. P. (1953). **The cultivation of the free-living stages of hookworms in the absence of living bacteria.**—*Amer. J. Hyg.* **58,** 352-376. **3201**

Ancylostoma caninum and *A. duodenale* were cultivated from egg to third larval stage using a medium containing chick-embryo or rat-liver extract, with the addition of antibiotics. The highest yields of infective larvae were obtained with 50% chick-embryo or 20% rat-liver extract.

Larvae grown in the heavy residue of the tissue extracts after centrifugation, or after dialysis against 0·85% sodium chloride, quickly accumulated lipoid materials and died. Larvae

cultured in the supernatant fluid from centrifugation did not develop to any appreciable extent, but survival was good. Neither of the tissue extracts was suitable for culturing larvae after heating.—JAS. G. O'SULLIVAN.

GORDON, H. McL. (1954). **The anthelmintic efficiency of phenothiazine against immature** *Trichostrongylus colubriformis*.—*Aust. vet. J.* **30,** 38-40. **3202**

Each of 25 sheep was given 40,000 *Trichostrongylus colubriformis* larvae in a single dose. After 12 days, 9 sheep were given 40 g. and 9 others 15 g. of phenothiazine by injection into the rumen *via* the flank. On the basis of worm-egg counts (McMaster method) 5 days a week, it appeared that, while 15 g. of phenothiazine had little effect, 40 g. killed 70–75% of the 12-day-old worms.

Each of 16 sheep received daily doses of 2,000 to 6,000 *T. colubriformis* larvae to a total of 614,000 over 213 days. Injection of 15 g. phenothiazine into the rumen of 8 of these sheep appeared to reduce the worm burden and delayed death from the infestation, as compared with the untreated group.

The results of these experiments confirmed previous observations that the usually prescribed dose of phenothiazine is ineffective in killing young *T. colubriformis*.

—R. I. SOMMERVILLE.

SPEDDING, C. R. W. (1953). **The effect of a sub-clinical worm-burden on the liveweight gain of lambs.**—*Emp. J. exp. Agric.* **21,** 255-261. [Author's summary modified.] **3203**

A group of six worm-free lambs gained an average of 22·6 lb. per head during a 10-week experiment, but their six twins, infested with *Trichostrongylus axei* and *Strongyloides papillosus*, gained only 10·9 lb. per head. The weight-gains of the infested lambs appeared to be directly related to the levels of infestation to which they were subjected. S. concluded that, even at subclinical levels, the economic loss is considerable and of real practical importance in relation to the production of mutton and lamb.

CASAROSA, L. (1954). La microascaridiosi sperimentale del vitello ed i suoi rapporti con le " macchie verdi " del vitello e vitellone della patologia spontanea. **[Infestation of calves with the larvae of** *Ascaris vitulorum*, **the cause of " green spotted " lesions of the visceral organs.]** — *Atti Soc. ital. Sci. vet., Cortina d'Ampezzo,* 1953. **7,** pp. 671-677. [English and French summaries.] Discussion: p. 678. **3204**

C. described the histology of " green spotted " lesions of the lungs, liver and kidneys of 3 calves experimentally infested with ova of *A. vitulorum*. [See also *V.B.* **23,** 155 & **24,** 815.]—R.M.

CARATI, M. (1954). Necrosi acuta del pancreas da *Ascaris suilla* nel suino. **[Acute necrosis of the pancreas caused by** *Ascaris* **infestation in pigs.]**—*Atti Soc. ital. Sci. vet., Cortina d'Ampezzo,* 1953. **7,** pp. 588-596. [English and French summaries.] **3205**

During P.M. examination of a pig which had died from swine fever, it was found that the pancreas was necrotic, owing to obstruction of the pancreatic duct by *A. lumbricoides*.

—R.M.

GÄRTNER, H. & MÜTING, L. (1951). Beitrag zur Frage der Lebensdauer von Ascariden-Eiern im Rieselfeldboden. **[Viability of** *Ascaris* **ova in soil.]**—*Z. Hyg. InfektKr.* **132,** 244-249. **3206**

Ascaris eggs die in less than two years in soil irrigated by sewage effluent and the authors suggest that the fermentation processes in the soil are responsible for this result.

—E. J. L. SOULSBY.

TUGWELL, R. L. & ACKERT, J. E. (1952). **On the tissue phase of the life cycle of the fowl nematode,** *Ascaridia galli* **(Schrank).** — *J. Parasit.* **38,** 277-288. **3207**

In experimentally infected chickens the tissue phase in the intestinal mucosa usually lasting from the 8th to 17th day, may extend from the 1st to 26th day. After 14 days, the larvae in the tissues, in contrast to those in the lumen, cease growing and moulting is retarded.

—D. POYNTER.

CASAROSA, L. (1950). La acuariosi (o disfaragosi) dei polli. Nota I. Contributo alla conoscenza dei parassiti. **[***Acuaria* **infestation in fowls.]**—*Zooprofilassi.* **5,** 275-290. [French summary.] **3208**

C. described the morphology and biology of *A. hamulosa* and *A. spiralis* from domestic fowls. The highly differentiated structure of the " cordons " (cuticular ridges) and terminal papillae might explain the migratory activity of the parasites into the tissues of the host and their pathogenicity.—M. BERTANI.

MAZZOTTI, L. (1952). Descubrimiento de microfilarias de Onchocerca. Descubrimiento de microfilarias de *Onchocerca cervicalis* en tejidos oculares del caballo. [*O. cervicalis*

larvae in the eyes of horses.]—*Medicina, Méx.* **33,** 291-292. [English summary.] **3209**

Microscopic examination of subconjunctival tissue from the lamina propria of the bulbar conjunctiva of one of the eyes from each of the carcasses of 9 horses killed for food in Mexico City revealed the presence of viable microfilariae of *O. cervicalis* in 4 of the specimens, their number varying from 1–16. M. discussed the possible connexion with ocular infestation with *O. cervicalis* in human beings.
—F.E.W.

McFadzean, J. A. (1952). **Investigations into the cause of microfilarial periodicity.**—*Brit. med. J.* May 24th, 1106-1109. **3210**

When the oxygen conc. of the blood is increased above 38% or decreased below 13%, at atmospheric pressure, the number of microfilariae in the blood is greatly increased during the day, and slightly at night.—W. R. Bett.

Vogelsang, E. G. & Mayaudon, T. H. (1952). Nematodes parásitos intestinales de bovinos de Venezuela. [**Parasitic nematodes of cattle in Venezuela.**]—*Rev. Med. vet., Caracas.* **11,** Nos. 3 & 4. pp. 297-301. **3211**

An account of *Ascaris vitulorum, Oesophagostomum radiatum, Haemonchus contortus, H. similis, Trichuris ovis* and *Bunostomum phlebotomum* infestations of cattle in Venezuela.
—R.M.

Galliard, H., Lapierre, J., Lapierre, M. & Berdonneau, R. (1953). Test de Thorn à l'A.C.T.H. et autres épreuves du fonctionnement cortico-surrénal dans des cas d'infestation par les helminthes. [**The use of the A.C.T.H. test described by Thorn for adrenal cortical function in helminth infestation.**]—*Ann. Parasit. hum. comp.* **28,** 372-386. **3212**

The test described by Thorn, using 25 mg. A.C.T.H. given i/m, was carried out on 26 human beings with helminth infestation. Of these, 9 developed positive reactions as judged by the subsequent drop in the eosinophile count. The authors suggested that maintenance of an eosinophilia after administration of A.C.T.H. is due to a temporary slow response of the adrenal cortex in affected individuals, and that although results are by no means constant the test may have a value in diagnosis, especially in inapparent infestations.—M. L. Clarke.

Wetzel, R. (1952). Helminthen und Immunität. [**Helminths and immunity.**]—*Zbl. Bakt. I. (Orig.)* **158,** 199-205. **3213**

A discussion of the nature of immunity to helminth parasites. Helminths produce antigens and the host is stimulated to produce antibodies which limit the existing infestation and prevent or hinder further infestation. In this way the host is usually protected against severe damage, but remains a carrier. This host-parasite relationship is not, however, a constant one, but depends on the health of the host. Deficient nutrition or some other debilitating factor may easily lead to a breakdown of immunity.—H. Behrens.

See also absts. **3096** (bacteriostatic and bactericidal action of the coelom-fluid of ascarids); **3393** (report, Jamaica).

SPONTANEOUS AND TRANSMISSIBLE NEOPLASMS AND LEUCAEMIAS [INCLUDING FOWL PARALYSIS]

Teuscher, E. & Küng, W. (1954). Vormagenpolypen als Ursache chronischer Verdauungsstörungen. [**Two cases of chronic tympanites in cattle caused by occlusion of the oesophagus by fibromas.**]—*Schweiz. Arch. Tier. heilk.* **96,** 154-158. [English, French and Italian summaries.] **3214**

The authors described two cases of chronic tympanites in cows, caused by occlusion of the oesophagus by a fibroma growing from the wall of the rumen. One case was diagnosed by means of rumenotomy, and the neoplasm was successfully removed by surgery. The other case was diagnosed at slaughter.—R.M.

Nielsen, S. W. (1953). **Clinical aspects of mastocytoma in dogs. Frequency, regional involvement, metastasis, recurrence, and differential clinical and pathological diagnosis.**—*Proc. 89th Ann. Meet. Amer. vet. med. Ass. Atlantic City. June 23-26th* 1952. pp. 212-217. Discussion: pp. 217-218. **3215**

N. described mast cell lesions (mast cell sarcomas) of the skin of dogs, occurring on the thighs and external genital organs, and to which Bloom [*V.B.* **13,** 1449] gave the name mastocytoma.—R.M.

Lombardo, N. (1953). Sui tumori facciali del cane. [**Neoplasms of the face in dogs.**]—*Arch. Vet. Ital.* **4,** 193-200. [English, French and German summaries. Abst. from English summary.] **3216**

An account of neoplasms of the face in 4

dogs, comprising respectively a fibrochondro-osteoblastic sarcoma, two epitheliomas and a secondary localization of a Sticker's sarcoma of the genital tract.

I. STOLK, A. (1952). **Some tumours in whales.** —*Proc. Acad. Sci. Amst.* Ser. C. **55**, 275-278. [In English.] **3217**

II. STOLK, A. (1953). **Some tumours in whales. II.**—*Ibid.* 369-374. [In English.] **3218**

I. S. described adenoma of the liver in a bottlenose dolphin (*Tursiops tursio*), and fibromata of the skin in a sperm whale (*Physeter macrocephalus*) and a fin whale (*Balaenoptera physalus*) and of the tongue in a fin whale and a humpback (*Megaptera nodosa*).

II. An account of fibromas of the skin in a humpback, a fin whale and a sperm-whale, and a wart, and haemangioma of the liver in sperm whales.—R.M.

HEATH, J. C. (1954). **Cobalt as a carcinogen.** [Correspondence.]—*Nature, Lond.* **173**, 822-823. **3219**

By adding cobalt chloride solution at a very low concentration (10×10^{-6} g./ml. cobalt) to cultures of chick fibroblast tissue, H. produced disturbances of normal mitotic division, characterized by the persistence of nucleoli throughout prophase into meta-, ana- and telophase, and the appearance after some time (72 hours) of many giant cells at metaphase, each with one or more large cytoplasmic nucleoli. These giant cells, observed by phase - contrast microscopy, became reconstructed into mononucleate cells without any division taking place.

When cobalt in fowl serum was injected into ten rats, two of them developed tumours at the site of injection after five months, and at P.M. examination these were found to be malignant neoplasms.

Further work is in progress to examine the carcinogenic properties of other metals.—A.S.

FEINSTEIN, R. N. & BALLIN, J. C. (1953). **Carboxypeptidases and carboxypeptidase inhibitor in tumor-bearing animals. A possible blood test for neoplasia.** — *Cancer Res.* **13**, 780-783. **3220**

Carboxypeptidase is that enzyme which hydrolyses chloracetyl-L-tyrosine with the production of acid groups and free tyrosine. That enzyme which requires cysteine for activity is designated carboxypeptidase a (CPa), and that which is active only in the absence of cysteine, carboxypeptidase b (CPb). Inhibitors to either enzyme are known as CPaI or CPbI. While normal blood cells carried a considerable content of CPaI the CPaI content of the blood cells in tumour-bearing rats and mice was quite low. In rats implanted with Walker carcinoma, there was a rapid decrease of CPaI following transplantation, with a rapid return to normal beginning within 24 hours of extirpation of the tumour. The authors suggested that the CPaI blood content test may be a suitable clinical test for the presence of neoplasia.—E. COTCHIN.

KONEFF, A. A., MOON, H. D,. SIMPSON, M. E., LI, HAO CHOH, & EVANS, H. M. (1951). **Neoplasms in rats treated with pituitary growth hormone. IV. Pituitary gland.**—*Cancer. Res.* **11**, 113-117. **3221**

Rats receiving growth hormone over long periods developed neoplasms in certain organs —lungs, lymphatic tissues, adrenal glands, reproductive organs—much more frequently than untreated rats. The pituitary glands of rats injected with growth hormone were compared with control rats injected with serum albumin, but there was no correlation between pituitary lesions (the changes encountered including a decrease in number, size and granule content of the acidophile cells) and the neoplasms of any particular types occurring in the other organs.—E. COTCHIN.

MOORE, A. E. (1952). **Viruses with oncolytic properties and their adaptation to tumors.**—*Ann. N.Y. Acad. Sci.* **54**, 945-952. **3222**

M. discussed the destruction of neoplastic tissue by viruses, and gave a list of 11 viruses which have been shown to possess this property. She described experiments on the action of Russian encephalitis virus on sarcoma in mice.—IAN DAVIDSON.

DOBBERSTEIN, J. (1952). Zur vergleichenden Pathologie der Leukosen. **[Comparative pathology of leucosis.]** — *Folia haemat.* **71**, 591-597. **3223**

A review of the aetiology of, and transmission experiments on, leucosis in domestic animals.—R. B. HOLCOMBE.

VENDRAMINI, R., BRUNI, A. & MAJORI, L. (1952). Sulla presenza di un fattore virale nella leucosi del cane. **[A virus factor in canine leucosis.]**—*Boll. Ist. sieroter. Milano.* **31**, 7-22. [English summary.] **3224**

The authors produced fatal meningoencephalitis in 2 dogs by intracerebral inoculation of blood from a dog with leucosis. Glycerol-suspended brain material from these dogs stored at room temperature remained infective for 38 days. The cerebral syndrome was accompanied by a marked decrease in the num-

ber of red cells in the blood and the presence of immature white cells. Blood from a leucotic dog inoculated into the femoral marrow produced a similar blood picture, but did not have a fatal effect. Another dog inoculated intraperitoneally with the same material remained healthy. Similar changes in the blood picture were observed in g. pigs and rabbits following intraperitoneal and intracerebral injection of leucotic blood and brain material. In pigeons the reaction was less marked and mice and rats proved refractory.—E.G.

DAHME, E. (1953). Serumeiweissuntersuchungen bei der Hühnerleukose. **[Examination of the serum-protein in fowl paralysis.]** — *Berl. Münch. tierärztl. Wschr.* **66**, 383-385. [English summary.] **3225**

Examination by electrophoresis of the serum protein fractions of the blood of 8 fowls affected with the erythroblastic form of fowl paralysis, revealed hyperglobulinaemia within the α- and β-fractions and reduction in serum albumin. These non-specific changes were considered to be due to secondary inflammation and antibody formation.—H. BOYD.

COLES, R. (1954). **Lymphomatosis and the breeder's problem.**—*Poult. Sci.* **33**, 350-360. [Author's summary modified.] **3226**

C. discussed the problem in attempting to breed and subsequently to distribute stock genetically resistant to the lymphomatosis complex. He described experimental work in an attempt to achieve a degree of resistance to the disease. He emphasized the substantial expenditure involved and the unremitting vigilance required once a measure of resistance is achieved. He suggested that a five or six year programme to attain resistance in a breeding flock is likely to be beyond the financial means of most breeders. Unfortunately breeding along the lines described allied with rearing away from adult stock, and preferably on land from which poultry have been excluded, appears to offer the only practicable means of reducing the heavy losses due to lymphomatosis which are borne by the poultry industry in most countries.

JULIAN, L. M. (1953). **Effect of transplantable lymphomatosis (Strain RPL 16) on young, rapidly growing chickens.** — *Amer. J. vet. Res.* **14**, 601-608. [Abst. from author's summary.] **3227**

Chickens, 3 weeks old, inoculated in the leg muscles with 0·5 ml. of a suspension of tumour tissue (RPL 16) grew at the same rate as normal birds until 48 hours before death, when they were found to have lost weight. The liver, spleen and kidneys were enlarged. The kidney on the side of the body corresponding to the site of inoculation was always larger. This observation may support the assumption that the fowl has a functional renal portal system.

Total and differential leucocyte counts in the case of inoculated birds revealed an increase mainly in neutrophiles during the last 48 hours of life. No marked changes in the erythrocyte count were demonstrable.

See also abst. **3361** (heredity and bovine leucosis).

NUTRITIONAL AND METABOLIC DISORDERS

I. FRANKLIN, M. C. (1953). **Feeding standards for beef cattle.**—*Leafl. Commonw. sci. industr. Res. Org., Aust.* No. 7. pp. 16. **3228**

II. FRANKLIN, M. C. (1954). **Feeding trials with beef cattle.**—*Ibid.* No. 8. pp. 16. **3229**

III. FRANKLIN, M. C. (1953). **Feeding beef cattle for show.**—*Ibid.* No. 9. pp. 8. **3230**

I. Feeding standards developed in the U.S.A., based on total digestible nutrients, and in England, based on starch equivalent units, are included in this leaflet.

A section is devoted also to the nutritive value of feeding stuffs compiled from averages of local analyses.

II. This leaflet refers to data which are being collected in the southern states of Australia to measure the performance of steers in typical beef-producing areas. This is a prerequisite to research on problems of supplementary feeding and "topping-off" by complete hand feeding.

Data are included of "topping-off" trials carried out in southern New South Wales. The requirements for Australian conditions for "topping-off" by complete hand feeding for several weeks before slaughter are discussed.

III. Recommendations are made of quantities to feed, frequency of feeding and fodders to use. Emphasis is placed on balance of rations, weighing fodders, making feed changes gradually and allowing sufficient time to prepare beasts. No special preparation of feeds such as boiling is necessary.—B. PANARETTO.

HUHTANEN, C. N., SAUNDERS, R. K. & GALL, L. S. (1954). **Fiber digestion using the miniature artificial rumen.**—*J. Dairy Sci.* **37**, 328-335. [Authors' summary modified.] **3231**

The authors described the use of a miniature artificial rumen designed for the study of fibre digestion by rumen bacteria, and discussed a method for determining fibre. One example of the use of this technique was a study of the *in vitro* effect of antibiotics on the digestion of fibre by rumen bacteria. They described its use in field work on animal husbandry.

ROGNONI, G. (1954). L'impiego di tracce di antibiotico nella razione alimentare del vitello: influenza del prodotto residuo della fabbricazione dell'aureomicina sul controllo delle infezioni neonatali e sull'incremento ponderale al primo mese di età. [**Effects of feeding new-born calves with residues from the manufacture of aureomycin on the incidence of disease and growth rate.**]—*Atti Soc. ital. Sci. vet., Cortina d'Ampezzo.* 1953. **7**, pp. 884-889. [English and French summaries.] **3232**

R. performed experiments similar to those described by other authors [*V.B.* **21**, 3013; **22**, 1211 & 1532; **23**, 2622 & 3130; **24**, 509] with similar results.—R.M.

FERRANDO, R., JOUBERT, L., SALIN, J. & GORET, P. (1953). Sur les répercussions de l'adjonction de quelques antibiotiques à la ration alimentaire du poulet et du porcelet. [**Effects of the addition of aureomycin and penicillin to the diet of chickens and piglets.**]—*Rec. Méd. vét.* **129**, 998-1020. **3233**

A significant gain in weight and an improvement in efficiency of food utilization as compared with control animals is reported following the addition of penicillin and aureomycin to the diet of chickens and piglets. An examination of the intestinal flora showed that in both chickens and piglets receiving the antibiotic supplements, a change of flora took place with the appearance, at least in the chicken, of intestinal bacteria resistant to both the antibiotics used in the experiments.—J. A. NICHOLSON.

BELL, J. M., GRAHAM, V. E., GIBSON, D. L. & LAWTON, W. C. (1954). **Increasing the food value of whey by yeast fermentation. IV. Feeding trials with mice.**—*Canad. J. Tech.* **32**, 55-59. [Authors' abst. modified.] **3234**

In nutritional studies with mice, powdered whey which had been fermented by *Torula cremoris* was shown to possess more protein, fat, thiamine, riboflavin, calcium, and phosphorus than skim milk. When it was used in conjunction with a wheat-oats ration, its protein supplementary value was equal to that of dried skim milk even though its methionine content was apparently lower. Yeast-whey ranked with dried brewers' yeast as a vitamin source, except in the case of thiamine.

ZWIJNENBERG, H. A. (1952). Over de z. g. "Enterse ziekte" bij varkens. [**A disease of pigs in the Netherlands.**]—*Vlaam. Diergeneesk. Tijdschr.* **21**, 25-35. [English, French and German summaries.] **3235**

"Enterse ziekte" (named after the village, Enter, where it was first seen at meat inspection) is a non-inflammatory condition in clinically normal slaughtered pigs in the Netherlands. The lesions are diffuse oedema of the muscles, which have a cloudy appearance, with loss of the transverse striated character. Z. suggested that a nutritional factor is involved. [See also Tacken [*V.B.* **24**, 2445.]—C. A. VAN DORSSEN.

I. BALDISSERA NORDIO, C. (1954). Effetti dell'alimentazione con moderate quantità di cipolle nel cane. [**Effects of feeding moderate amounts of onions to dogs.**]—*Atti Soc. ital. Sci. vet., Cortina d'Ampezzo.* 1953. **7**, pp. 193-195. [English and French summaries.] **3236**

II. BALDISSERA NORDIO, C. (1954). Nuove ricerche sui rapporti tra anemia da cipolle in gravidanza e quadro ematico dei feti alla nascita. [**Relationships between the feeding of onions to pregnant animals and the blood picture of the new-born offspring.**]—*Ibid.* pp. 200-201. [English and French summaries.] **3237**

III. BALDISSERA NORDIO, C. (1954). Quadro ematico e riserve marziali epatiche nei lattanti di madri anemizzate con cipolle in gravidanza. [**Blood picture and iron content of the liver in young animals suckled by dams with anaemia caused by feeding onions.**]—*Ibid.* pp. 202-204. [English and French summaries.] **3238**

I. Anaemia was produced in 3 dogs by feeding them a diet containng 4, 6 or 8 g./kg. body wt. respectively of cooked onions daily for 14 days. [See also *V.B.* **24**, 512.]

II & III. Healthy offspring, with normal blood pictures, were born to goats and bitches which at the time of parturition were anaemic as a result of having been fed a diet containing onions. The iron content of the liver of the puppies was normal. [See also *V.B.* **24**, 514.] —R.M.

BIONDO, G. & DI LEO, S. (1954). Alcuni aspetti delle modificazioni del latte in capre trattate con olio d'oliva rancido. [**Changes in the milk following the administration of**

rancid olive oil to goats.]—*Atti Soc. ital. Sci. vet., Cortina d'Ampezzo,* 1953. **7,** pp. 254-257. [French and German summaries.] **3239**

The viscosity of milk from 3 goats fed a ration containing 50–100 ml. rancid olive oil per day for 40 days was higher than before treatment. The authors suggested that this increase was due to changes in the physical structure or chemical composition of the fat globules.—R.M.

GARTON, G. A. & DUNCAN, W. R. H. (1954). **Dietary fat and body fat : the composition of the back fats of pigs fed on a diet rich in cod-liver oil and lard.**—*Biochem. J.* **57,** 120-125. [Authors' summary slightly modified.] **3240**

The authors examined the inner- and outer-back fats of two pigs fed on a diet containing a mixture of equal parts of lard and cod-liver oil. The fats were dark brown and oxidized to a considerable degree.

Crystallization of the back fats of one animal from acetone at $-40°$ separated each into 68% of an insoluble glyceride fraction, the iodine value of which approximated to that of lard, and 32% of soluble glycerides of much higher mean unsaturation.

Determination of the component fatty acids of the acetone-separated glycerides from the inner-back fat showed that the insoluble glycerides resembled normal pig fat except for the presence of somewhat more unsaturated acids of the C_{16} and C_{20} series than are usually present in the latter. The acetone-soluble glycerides showed a striking resemblance to cod-liver oil in as far as their content of unsaturated fatty acids was concerned, but contained less polyethenoid C_{20} and C_{22} fatty acids with correspondingly increased amounts of C_{16} and C_{18} unsaturated acids.

It was concluded that the lard and cod-liver oil were absorbed essentially unchanged and deposited additively along with typical ' synthesized ' pig fat in the depots; the authors suggested that depletion of antioxidant (vitamin E) then occasioned oxidation of the polyethenoid fatty acids of the cod-liver oil.

They discussed the results in relation to the injurious effects of diets containing unsaturated fat and little or no vitamin E.

ALEKSANDROWICZ, S., ŁOSIŃSKI, T., KRAUPE, W. & BENEDYKCIŃSKI, S. (1953). Stosowanie różnych dawek pasz wysokobiałkowych w żywieniu prosiąt w okresie kwarantanny. **[Feeding experiments with piglets with various types of high-protein diet.]**—*Méd. vét., Varsovie.* **9,** 538-541. [In Polish.] **3241**

All piglets purchased for fattening by government bacon factories in Poland are vaccinated against swine fever (crystal violet) and swine erysipelas (by the method described by Staub) and are subsequently quarantined for 6 weeks. In controlled feeding tests with such piglets after vaccination the authors found that milk could safely be substituted by fish meal and blood meal, even immediately after crystal violet vaccination, and that the level of protein in the diet need not be reduced after inoculation against swine erysipelas. Access to an outside run should be provided.

—J. R. MITCHELL.

HOVE, E. L. & COPELAND, D. H. (1954). **Muscular dystrophy in rabbits as a result of chronic choline deficiency.**—*Fed. Proc.* **13,** 461. [Only abst. given. Abst. copied *verbatim.*] **3242**

Progressive muscular dystrophy developed in young rabbits that had been fed a choline-deficient diet for more than 70 days. Creatine excretion gradually increased to more than 40 mg/kg/day, while the creatinine excretion decreased to less than two-thirds of the normal value. The muscles of posterior extremities became flaccid and extremely weak, although complete loss of muscle control did not occur. Histologic studies on the muscle have shown hyaline degeneration and other lesions characteristic of muscular dystrophy produced by other means. The addition of choline to the diet brought about a rapid cure of the clinical dystrophy and creatinuria within 3 days. Vitamin E deficiency as a contributing cause of this dystrophy was ruled out by feeding 10 times the normal amount of α-tocopherol and determining the tocopherol content of plasma, muscles and other organs.

CENNI, B. (1954). Il Ca^{++} nelle urine di pecore alimentate con foraggi conservati mediante soluzioni di acidi minerali. **[Calcium content of the urine of sheep fed silage conserved by mineral acids.]** — *Atti Soc. ital. Sci. vet., Cortina d'Ampezzo,* 1953. **7,** pp. 439-442. [English and French summaries.] **3243**

Five sheep were fed for a month on lucerne silage conserved by the A.I.V. method. During this period the Ca content of the urine averaged 95–109 mg./100 ml., compared with a normal range of 10·4–10·9 mg./100 ml. Normal levels were resumed 10 days after silage feeding ceased.—R.M.

MERKLEN, F.-P., BERTHAUX, P. & FORMAN, J. (1953). Les anomalies hyperkaliémiques de l'onde T de l'électrocardiogramme et l'antagonisme calcium-potassium chez diverses espèces animales. [**Effects of excess potassium on the electrocardiogram and the antagonism between calcium and potassium in some species of animals.**] — *Rev. Path. gén.* **53,** 917-942. [English summary.] **3244**

Excess potassium in the blood both amplifies and changes the shape of the positive T-wave of the electrocardiogram, whereas excess calcium reduces the amplitude and may even reverse the polarity of the T-wave.

Although these effects were observed regularly in rabbits and dogs and less constantly in cats, rats and g. pigs, they are subject to variations in form which preclude the formulation of any general rule regarding antagonism of calcium and potassium blood levels—nor can a typical shape of the T-wave be assigned to excess potassium.—E.V.L.

RIEK, R. F. (1954). **The influence of sodium salts on the closure of the oesophageal groove in calves.**—*Aust. vet. J.* **30,** 29-37. **3245**

Glucose was used as an indicator of the route taken by fluids drenched to cattle. When it was injected directly into the rumen no significant increase in the conc. of blood-sugar could be detected. When injected into the abomasum blood sugar increased, with maximum figures 1–2 hours after injection. When glucose was given by mouth a significant increase in blood-sugar occurred only when swallowed into the abomasum.

When testing the effects of various compounds on reflex closure of the oesophageal groove a soln. of 50 g. glucose in 60 ml. water was drenched to the animal within 15 sec. of administration of the drug under test. An increase of at least 6 ml.% blood-sugar in 60 min. over the value recorded before treatment was regarded as significant and as an indication that closure of the oesophageal groove had taken place.

Sodium bicarbonate was the most effective of the drugs tested, which included sodium chloride, acetate, and sulphate, aluminium chloride, cobalt chloride, sulphate, and nitrate, copper sulphate, ferric chloride, magnesium chloride and sulphate, manganese chloride and zinc sulphate. A drench of 60 ml. of 10% sodium bicarbonate activated the oesophageal groove mechanism in 103 out of 110 animals. The same quantity of 5% soln. of sodium bicarbonate and of 10% soln. of sodium chloride caused activation in 15 out of 20 and 15 out of 18 animals used respectively. Copper sulphate, which causes satisfactory closure of the oesophageal groove in sheep, had little effect in cattle. There was some evidence that the activation of the mechanism by the sodium ion is assisted by the nature of the anion present.

—H. McL. GORDON.

DENTON, D. A., McDONALD, I. R., MUNRO, J. & WILLIAMS, W. (1952). **Excess Na^+ subtraction in the sheep.** — *Aust. J. exp. Biol. med. Sci.* **30,** 213-250. **3246**

The authors caused sheep to excrete excessive amounts of sodium ions, as compared with chlorine ions, by collecting saliva which contains more Na than Cl from oesophageal fistulas in 9 sheep. The sodium ion content of the saliva was initially 135–150 m. equiv./l. while that of chlorine ion was 20–30 m. equiv./l. This imbalance was only partly met by excess excretion of chlorine ions by the kidneys. They discussed the physiology of these changes, with reference to comparable conditions in human beings, *e.g.* duodenal fistula.—R. MARSHALL.

BARTLETT, S., BROWN, B. B., FOOT, A. S., ROWLAND, S. J., ALLCROFT, R. & PARR, W. H. (1954). **The influence of fertiliser treatment of grassland on the incidence of hypomagnesaemia in milking cows.** — *Brit. vet. J.* **110,** 3-19. **3247**

Milking cows were turned directly from indoor feeding to an all grass diet from three grass plots. One plot was dressed with 25 cwt. magnesite and one cwt. of sulphate of ammonia per acre, another with 6 cwt. of sulphate of ammonia per acre and a third with 4 cwt. of sulphate of potash per acre. Out of the 15 cows turned on to the plot dressed with sulphate of ammonia alone, 11 developed severe hypomagnesaemia; of these 5 showed typical symptoms of grass tetany and 2 died suddenly. It was concluded that hypomagnesaemia was dependent in part at least on the animals being in milk and was not entirely dependent on a particular grass variety. The evidence did not suggest that the disease was due to a dietary deficiency of magnesium, but increasing the daily magnesium intake appeared to prevent it.

—J. A. NICHOLSON.

STEWART, W. B., VASSAR, P. S. & STONE, R. S. (1953). **Iron absorption in dogs during anemia due to acetylphenylhydrazine.** — *J. clin. Invest.* **32,** 1225-1228. [Authors' summary slightly modified.] **3248**

Dogs were given s/c injections of acetylphenylhydrazine to make them anaemic. After various periods of anaemia a test dose of radio-

active iron was given by stomach tube. All those which had been anaemic at least 3 weeks absorbed more iron from the gastro-intestinal tract than controls. One of two dogs which were anaemic for only 2 weeks absorbed more than a normal amount of iron. It was concluded that haemolytic anaemia caused increased absorption of iron in dogs.

HONORÉ, R. & HVIDSTEN, H. (1952). Undersøkelser over fôringas virkning på oksydasjonsfeil i mjølk. III. Tilskudd av kopper til fôret. [**The effects of diet on the oxidized flavour in milk. III. Addition of copper to the diet.**]—*Meieriposten.* **41,** 309-313. [Abst. from English summary.] **3249**

The addition of copper sulphate to the food of two cows at the rate of 200 mg. for 3 days and 1 g. for the next 3 days, did not influence the Cu content of the milk, nor the occurrence of oxidized flavour in the milk.—R.M.

SENIOR, B. J., SHEEHY, E. J., O'SULLIVAN, G. F. & O'DONOVAN, J. (1954). **Blood copper deficiency in Offaly cattle.** — *Sci. Proc. R. Dublin Soc.* **26,** 263-273. **3250**

In 41 out of 47 scouring and unthrifty cattle, not infested with helminths nor affected with aphosphorosis, from 12 different farms in Ireland, the Cu content of the blood was below 0·04 mg./100 ml., as compared with 0·07 mg./100 ml. or more in 84 out of 87 cattle from 14 unaffected farms. After affected cattle had been given 5 g. $CuSO_4$ by mouth the condition of the animals improved and the blood Cu content ranged from 0·03–0·09 mg./100 ml. The Cu content of herbage from affected and unaffected farms was in both cases normal, but the Mo content of the herbage from the former was 7·7–32·7 p.p.m. compared with 1·1–3·8 p.p.m. [See also *V.B.* **23,** 2885.]—R.M.

ANON. (1954). **Limits for zinc in foods.**—*Nature, Lond.* **173,** 475. **3251**

Limits of zinc content recommended by the competent Ministry of Food sub-committee are: 5 p.p.m. for ready-to-drink beverages and 50 p.p.m. for other foods, but there is no objection to higher contents in certain vegetable and animal products, provided the zinc occurs in them naturally.—G. P. MARSHALL.

I. FOURNIER. (1954). L'effet protecteur du lait vis-à-vis de la résorption des os de la rate allaitante. [**Protective effect of milk against the resorption of bone in the lactating rat.**] —*C. R. Acad. Sci., Paris.* **238,** 391-393. **3252**

II. FOURNIER, P. (1954). L'effet protecteur du lactose vis-à-vis du squelette de la rate allaitante. [**Protective effect of lactose for the skeleton of the lactating rat.**] — *Ibid.* 509-511. **3253**

I & II. First milk, and then lactose alone, was shown, in a controlled feeding experiment, to prevent the loss of about 20% in weight and calcium content of long bones, which occurs during the 20 days of lactation in animals not so fed.—F. L. M. DAWSON.

DUNLOP, G. (1954). **Rickets in sheep.** [Correspondence.]—*Nature, Lond.* **173,** 453. **3254**

A single oral dose of vitamin D (2 million I.U.) in December prevented the occurrence of rickets for two months. Untreated control animals were severely affected. Body weight, blood calcium and serum phosphate figures confirmed the maintained effect of the single dose. —P. H. HERBERT.

CORSICO, G. (1954). Miodistrofia enzootica degli agnelli in un gregge karakul. [**An outbreak of muscular dystrophy in Karakul lambs.**]—*Atti Soc. ital. Sci. vet., Cortina d'Ampezzo,* 1953. **7,** pp. 566-569. [English and French summaries.] **3255**

C. described an outbreak of muscular dystrophy ("stiff lamb" disease) in lambs 1–3 weeks old, of Karakul ewes kept in stalls in a district of Venice, and discussed the aetiology. —R.M.

DEBECKER, F. (1953). Vitamine K comme traitement étiologique de l'*Haematuria essentialis* (hématurie essentielle) des bovidés. [**Vitamin K in treatment of bovine chronic haematuria.**]—*Bull. agric. Congo belge.* **44,** 995-1000. **3256**

The coagulation time for the blood of cattle from regions of the Belgian Congo where chronic haematuria occurs varied between 12 and 25 min. in animals which had spent 2 or more years in such areas, as compared with a normal time of 8–10 min. in unweaned calves and newly imported animals. The pH of the soil in affected areas was 4–6. Vitamin K, given intravenously, intramuscularly or *per os* reduced the coagulation time and 48 out of 50 animals so treated recovered when the coagulation time had returned to normal. About half relapsed, but most of these were cured after further dosage. D. concluded that bovine chronic haematuria is primarily caused by vitamin K deficiency resulting from the effect of acid soils on the intestinal flora, and secondarily by decreased vascular resistance of the tissues of the urinary bladder.—A.S.

PIANA, C. & BALDISSERA NORDIO, C. (1954). Sull'importanza delle ipovitaminosi "C" secondarie nel determinismo del cannibalismo nei polli. **[Importance of vitamin C deficiency in cannibalism in fowls.]**—*Atti Soc. ital. Sci. vet., Cortina d'Ampezzo,* 1953. **7,** pp. 222-225. [English and French summaries.] **3257**

The ascorbic acid content of the blood of 8 White Leghorn fowls affected with feather picking and a moderate helminth infestation averaged 0·4 μg./ml., as compared with 1–2 μg./ml. in healthy birds of the same breed and age. Treatment of affected birds with 20 mg. ascorbic acid per bird daily for 20 days, administered by parenteral injection, resulted in diminution of the feather-picking tendency, and an improvement in feathering. Oral administration of ascorbic acid was much less effective.—R.M.

MCSWINEY, R. R., CLAYTON, B. E. & PRUNTY, F. T. G. (1954). **Ascorbic-acid metabolism after administration of corticotrophin.**—*Lancet.* **266,** 178-182. **3258**

Studies in patients with adequate ascorbic-acid saturation showed that corticotrophin treatment produces an increase in the urinary output of ascorbic acid, as well as a non-specific increase in the production of its immediate oxidation products. Similar effects were seen in g. pigs with adequate ascorbic-acid saturation.
—G. P. MARSHALL.

CAPOCASA, O. (1954). Malattie neonatali da carenza di vitamina "C" ed "E". **[Disease in new-born calves associated with vitamin C and E deficiencies.]** — *Atti Soc. ital. Sci. vet., Cortina d'Ampezzo.* 1953. **7,** pp. 874-877. [English and French summaries.] **3259**

C. described waxy degeneration of the myocardium in calves in the province of Ascoli Piceno, associated with low vitamin E and vitamin C content of the blood, adrenal gland, and liver. Treatment with these vitamins gave the best results. [See also *V.B.* **18,** 134 & **19,** 1906.]—R.M.

SYDENSTRICKER, V. P. (1953). **The impact of vitamin research upon medical practice.**—*Proc. Nutr. Soc.* **12,** 256-269. **3260**

Vitamins are constituents of co-enzyme systems which are required by all forms of life as they are necessary for all vital processes, but there are wide species differences in requirements. Antivitamins may become as helpful in the control of some metabolic and malignant diseases as are vitamins in deficiency diseases. A diet sufficiently inadequate to produce clinical symptoms of avitaminosis is usually lacking several vitamins as well as protein, fat, iron and calcium. Healthy people eating a normal diet do not need added vitamins.—J. A. NICHOLSON.

WILTON, A., THORELL, B. & SUNDWALL, U. (1954). **Crooke's changes in the basophilic cells of the anterior pituitary body.**—*J. Path. Bact.* **67,** 65-68. [Authors' summary modified.] **3261**

The results of cytological and cytochemical analyses of Crooke's changes in the basophilic cells of the anterior pituitary body indicated that these changes are degenerative, and that a fully developed Crooke's cell is inactive in regard to hormone production.

KAY, H. D. (1954). **The feeding of iodinated protein and thyroxine to dairy cows. Recent British findings.**—*Agriculture, Lond.* **60,** 564-568. **3262**

K. discussed early work and presented the main findings in a long series of field experiments sponsored by the Agricultural Research Council. Temporary stimulation of declining milk yield is best achieved by feeding synthetic thyroxine. He discussed the disadvantages of such treatment.—P. H. HERBERT.

BARTLETT, S., BURT, A. W. A., FOLLEY, S. J. & ROWLAND, S. J. (1954). **Relative galactopoietic effects of 3:5:3-triiodo-L-thyronine and L-thyroxine in lactating cows.** — *J. Endocrin.* **10,** 193-201. [Authors' summary modified.] **3263**

The authors compared the relative potencies of L-triiodothyronine (TIT) and L-thyroxine in evoking the various phases of the galactopoietic response (increase in milk yield and in the percentage of milk fat and non-fatty solids, decrease in the milk alkaline phosphatase level) and tachycardia, in lactating cows. By the oral route, a dose of 64 mg. TIT daily was very much less effective than an approx. equimolar amount of L-thyroxine (75 mg. daily), as judged by effects on milk yield, fat and phosphatase. Neither substance affected the milk non-fatty solids. Thyroxine caused a progressive increase in heart rate throughout the feeding period, while TIT evoked an immediate tachycardia which at first equalled that eventually produced by thyroxine, but thereafter rapidly declined even while feeding of TIT was continued. By the subcutaneous route, 5 mg. TIT once daily were slightly more active than 5 mg. L-thyroxine once daily in evoking effects on milk secre-

tion (including, in this case, an increase in milk non-fatty solids content) and appreciably more active in producing tachycardia. When 2–5 mg. of these substances were injected twice daily, the results were almost identical.

The authors suggested that the relatively low oral potency of TIT as compared with L-thyroxine in cows is due to its greater solubility in the rumen contents, the micro-organisms of which quickly became adapted to bring about its inactivation.

LECOMTE, A. (1953). Essai de traitement de la cétose des brebis gestantes par la méthionine. **[Treatment of ketosis in pregnant ewes with methionine.]**—*Bull. Acad. vét. Fr.* **26,** 249-250. **3264**

Two ewes affected with ketosis shortly before term were given daily intrajugular injections of 0·15–0·225 g. of methionine. This rapidly controlled the nervous symptoms, completely in one case and almost so in the other.

—G. P. MARSHALL.

See also absts. **3289** (mushroom meal for poultry); **3345** (effect of various rations on bull semen).

DISEASES GENERAL

RITCHIE, J. N. (1954). **The part played by the State in controlling animal diseases.**—*Advanc. Sci.* **10,** 369-375. **3265**

In a symposium held by the British Association for the Advancement of Science at Liverpool, R. described the present position of notifiable diseases of livestock in Great Britain, and the laboratory facilities of the Ministry of Agriculture and Fisheries.—R.M.

ANON. (1954). **Report of Committee on Exotic diseases.**—*Proc. 57th Ann. Meet. U.S. live Stk sanit. Ass.* 1953. pp. 203-212. **3266**

The committee on exotic diseases of the U.S. Livestock Sanitary Association was appointed to study diseases of animals not occurring in the U.S.A., which may be introduced by accident or by acts of sabotage. The committee discussed general measures for the reporting, diagnosis, prevention, and control of such diseases. It did not refer to any specific diseases.—R.M.

GOLDBERG, L. J., WATKINS, H. M. S., DOLMATZ, M. S. & SCHLAMM, N. A. (1954). **Studies in the experimental epidemiology of respiratory infections. VI. The relationship between dose of microorganisms and subsequent infection or death of a host.**—*J. infect. Dis.* **94,** 9-21. [Authors' summary modified.] **3267**

The authors established a fundamental relationship between dosage and mortality following respiratory exposure of a group of mice to a pathogenic aerosol. They described results obtained by two modes of exposure:—(1) one short exposure period, 15 min. to 1 hour, using an aerosol conc. giving a range from zero to total mortality; (2) daily 40-min. exposures continued up to 4 weeks, the total dosage giving a cumulative mortality of some 40%.

The data obtained from these methods produced an empirical relationship between dose and mortality which could be expressed mathematically without the necessity of introducing any variable to account for rate of exposure. This expression is: $(1\text{-}M_d) = (1\text{-}M_{do})^{d/dO}$, where M_d is the observed mortality for inhaled dose d.

The following organisms were studied, and gave data fitting this equation: *Streptococcus pneumoniae, Str. pyogenes animalis, Pasteurella pestis,* and meningopneumonitis virus.

Studies on cumulative-dosage and cumulative-mortality allow the above expression to apply, provided the overall time involved is not sufficiently long to permit an immune response to become a complicating factor. Periods under 30 days were satisfactory for *Str. pneumoniae* infections in mice.

The authors cited additional data from the literature to illustrate the applicability of this expression to a variety of bacterial and viral pathogens administered by several routes to several hosts. They suggested that the expression may be fundamental to the description of a parasite interaction.

ANON. (1954). **Results of tests on blood specimens from veterinarians.** — *Iowa, Vet.* **25,** 24. **3268**

A report by the State Department of Health on blood samples taken from veterinarians at the Annual meeting of the State Veterinary Medical Association in 1953. Brucellosis, Q fever and leptospirosis were the diseases concerned.—W. S. MARSHALL.

MATTHAIAKIS, E. A. (1951). **[Clinical observations on and research into the causes of infectious paraplegia in the horse.]** — *Delt. Hellen. kten. Hetair.* **2,** 5-16; 62-72. [Abst. from French summary.] **3269**

An account of observations during a period of 18 years, based on the examination of several cases of paraplegia in horses in Greece. It is inferred that the condition is a disease entity.

—J. M. TAIT.

HAAKENSTAD, L. H. (1953). Undersøkelser over den patologiske hofteleddsluksasjon hos hest

med hensyn til lidelsens vesen og etiologiske forhold. Foreløpig meddelelse. **[Pathology of dislocation of the hip joint in horses.]**—*Nord. VetMed.* **5,** 884-896. [In Norwegian. English and German summaries.] **3270**

This preliminary communication covers investigations into dislocation of the hip-joint and chronic coxitis deformans which is common in aged Døle horses in Norway. H. concluded (1) that the condition is an osteo-arthrosis, with wearing of the articular cartilages, reaction in subjacent bone and subchondral sclerosis, in the hip-joints, usually bilaterally; (2) that shallow acetabula, perpendicularly placed, are predisposing factors, although the condition may occur with deep acetabula, as senile arthrosis; (3) that acetabula become more shallow when there is a forward inclination of the pelvis, *i.e.* horizontal loins, and that this is a possible aetiological factor. He gave 12 figures.

—R. B. Holcombe.

Carnus, Sergent & Lipp. (1952). Vers un test des déficiences circulatoires chez le cheval. **[A test for circulatory deficiency in the horse.]** — *Bull. Acad. vét. Fr.* **25,** 349-352. **3271**

The alkaloid salt, lobeline hydrochloride, when injected i/v at a dosage of 0·7 g. for a horse weighing 500 kg., produces an increase in the depth of respiration, which in the normal horse occurs 25–35 sec. after injection. Marked alterations in this time point to cardiac deficiency.—L. C. Vaughan.

Ramsey, F. K. & Chivers, W. H. (1953). **Mucosal disease of cattle.**—*N. Amer. Vet.* **34,** 629-633. **3272**

The condition described here as mucosal disease of cattle is characterized by fever, diarrhoea, sometimes blood-stained, profuse salivation, emaciation and dehydration, and sometimes a mucopurulent nasal exudate. P.M. erosion, ulceration, and even cystic changes were found in the mucous membranes of the digestive tract.

The authors described 42 cases of the disease in cattle aged 6–14 months from various parts of Iowa and adjoining States. The disease lasts 3–10 days, and the mortality rate is high; the incidence is chiefly in winter and early spring. Aetiology is unknown and treatment is unsatisfactory. In some respects the disease resembles hyperkeratosis and virus diarrhoea.

They gave six plates, showing lesions on the tongue, erosive and ulcerative gingivitis, ulceration of the abomasum and of a necrotic area of the jejuna.—C. A. E. Briggs.

Osborne, H. G. & Ensor, C. R. (1954). **Observations on calf scours in New Zealand.**—*N.Z. vet. J.* **2,** 14-16. [Authors' summary modified.] **3273**

In a preliminary survey of the problem of calf scours in North Auckland, 302 faecal samples from 100 scouring calves on 81 properties were examined for the presence of coccidial oocysts, helminth eggs and species of *Salmonella*. Most of the cases of blood scours in calves of all ages and the majority of all types of scours in calves from 2 to 12 weeks of age were associated with coccidial oocysts. Most of the non-blood scour cases in calves from 12 weeks to 2 years of age were associated with helminth infestation.

Bottarelli, A. & Cheli, R. (1954). Contributo allo studio dei corpi estranei nei prestomaci dei bovini. **[Observations on metallic foreign bodies in the rumen and reticulum of cattle.]** —*Atti. Soc. ital. Sci. vet., Cortina d'Ampezzo,* 1953. **7,** pp. 392-406. [English and French summaries.] **3274**

The authors summarized their experience of the diagnosis, prognosis, and treatment by rumenotomy of the foreign body syndrome in 300 cattle.—R.M.

Mantovani, G. & Vitale, G. (1954). Osservazioni sui valori della viscosità del siero di sangue nei bovini da macello. **[Viscosity of the blood serum in healthy and diseased cattle.]** — *Atti Soc. ital Sci. vet., Cortina d'Ampezzo,* 1953. **7,** pp. 274-301. [French and German summaries.] **3275**

The authors measured the viscosity of the serum of 527 slaughter cattle, 351 of them normal and the remainder affected with various diseases, principally *Fasciola hepatica* infestation, *Echinococcus* cysts and broncho-pneumonia. They tabulated the results according to age and state of health. The average viscosity of the serum of normal cattle up to 5 years old was 1·664 centipoise, and above 5 years old 1·893 centipoise. Values for diseased animals were generally higher.—R.M.

Gwatkin, R. & Dzenis, L. (1952). **Rhinitis of swine. VI. Topical application of streptomycin in artificially infected pigs.**—*Canad. J. comp. Med.* **16,** 330-332. **3276**

The intranasal instillation of 100 mg. streptomycin dissolved in 1 ml. water (0·5 ml. per nostril) daily for 5 days, prevented rhinitis in 13 out of 14 pigs experimentally infected 7 days previously at the age of 4 days. Ten out of 12 untreated controls developed the disease.

—P. J. G. Plummer.

SCHAPER, G. (1952). Zur Ätiologie und Therapie epileptoider Krämpfe beim Schwein. **[Aetiology and treatment of fits in pigs.]**—*Dtsch. tierärztl. Wschr.* **59,** 54-56. **3277**

An account of epileptiform fits in store pigs. During attacks the pH value of the blood was 8·4. To prevent the condition S. recommended that excess of potato in the diet should be avoided. Treatment consisted of bleeding and the s/c injection of " otrhomin " (hexamethylenetetramine thiocyanic acid).—S. E. FOX.

STÜNZI, H. (1952). Beobachtungen über die sekundäre Osteoarthropathie beim Hund. **[Osteoarthritis in dogs.]** — *Schweiz. Arch. Tierheilk.* **94,** 356-362. [English, French and Italian summaries.] **3278**

S. described 5 cases of osteoarthritis in dogs, in 4 of which the condition was apparently a sequel to primary or secondary neoplasms of the lung, while in the fifth, a young dog, it developed seemingly as a result of chronic broncho-pneumonia. He emphasized the importance of a thoracic examination in cases of osteoarthritis.—A.S.

ELIASIEWICZ, R. (1951). Morfologia guzowatych tworów w śledzionie u psów. **[Nodular hyperplasia of the spleen in dogs.]**—*Polsk. Arch. Weteryn.* **1,** 189-211. [English and Russian conclusions.] **3279**

E. described nodular hyperplasia of the spleen in 10 dogs aged from 5 months to 16 years. The nodules consisted of normal spleen tissue and did not display neoplastic features. His findings conformed in general with those described in the textbooks of special pathology [*e.g.* by Joest (1929)].

He regarded toxic factors and inflammatory processes outside the spleen as possible factors influencing the formation of these nodules, which are stated to be more common in older than in young dogs.—J. R. MITCHELL.

STOLK, A. (1953). **Some inflammations of whales.**—*Proc. Acad. Sci. Amst.* Ser. C. **56,** 364-368. [In English.] **3280**

S. described tonsillitis in a sperm whale (*Physeter macrocephalus*), colitis in a blue whale (*Balaenoptera musculus*), myositis in the region of the atlas of a blue whale, and inflammation of the right fin in a blue whale.—R.M.

STOLK, A. (1953). **Hepatic cirrhosis in the blue whale** (*Balaenoptera musculus*).—*Proc. Acad. Sci. Amst.* Ser. C. **56,** 375-378. [In English.] **3281**

The pathology of the cirrhotic liver of a blue whale (*Balaenoptera musculus*) resembled that of cirrhosis of the liver in human beings. There was no indication of the cause.—R.M.

CRAWSHAW, G. R., VETTEN, K. B. & WILSON, V. H. (1953). **Mitral incompetence in the dog. An experimental method.**—*S. Afr. J. med. Sci.* **18,** 79-83. **3282**

The authors described an operation for ligating 3–5 of the chordae tendineae of the left ventricle in dogs, in order to reproduce experimentally an incompetence of the bicuspid valve. This involved thoracotomy and cardiotomy, by way of the left auricle. Twelve dogs submitted to this operation lived for from 2 hours to 104 days, with moderate to severe symptoms of valvular incompetence.—R.M.

CATCOTT, E. J., THARP, V. L. & JOHNSON, L. E. (1953). **Beta ray therapy in ocular diseases of animals.**—*J. Amer. vet. med. Ass.* **122,** 172-175. **3283**

The authors described the use of beta-irradiation in the treatment of certain eye conditions. The equipment, which is illustrated in a photograph, utilizes strontium 90, producing rays which penetrate only to a depth of 2 mm. and so do not endanger the deeper eye tissues. With applications of 2 min. twice weekly up to a total of five applications on anaesthetized eyes at an intensity of 43·2 roentgen-equivalent beta per sec. papilloma in a bull and a horse disappeared, as did also vascular keratitis in a dog. They gave case histories.—B. G. CLARKE.

WINTROBE, M. M. (1954). **Principles in the management of anemias.**—*Bull. N.Y. Acad. Med.* **30,** 6-26. **3284**

A general account of the principles of the management of anaemias, as applied to human beings. Matters dealt with included errors in the routine estimation of data from blood counts and other blood factors; a scheme being shown of the complex relating to the erythron in a man weighing 70 kg.; an aetiological classification of the anaemias and a classification of haemolytic disorders; the management of anaemias.—W. R. BETT.

POISONS AND POISONING

FREEMAN, G., LUDEMANN, H., CORNBLATH, M., GOLD, A., FILBERT, M., UDALL, J., CUGELL, D. & CRAIG, A. (1954). **Acute parathion poisoning in dogs.**—*Fed. Proc.* **13,** 48. [Only abst. given. Abst. from abst.] **3285**

The authors studied the physiopathology of acute, fatal parathion poisoning in dogs by continuous recording of blood pressure, electro-

cardiogram, and air-flow, together with frequent determinations of oxygen saturation. Plasma potassium and adrenaline were also measured. The administration of atropine to anoxic animals in the pre-terminal stages of poisoning failed to precipitate ventricular fibrillation in a significant number of animals; 2 of 10 dogs so treated survived, whereas no other animals which had received 40 mg./kg. survived without artificial respiration. Ventricular fibrillation also occurred spontaneously without the use of atropine.

WHITTY, J. D. (1953). **Toxicity of tetmosol (tetraethylthiuram monosulphide) for domestic fowl.**—*Irish Vet. J.* **7,** 207-208. **3286**

A 1:4 aqueous solution of tetmosol applied all over the body caused the death of 2 adult hens, and caused depression in a third hen, after application to the shanks.

—F. T. W. JORDAN.

ANDERSON, R. W., BLAKELY, R. M. & MACGREGOR, H. I. (1952). **The toxicity of aldrin for growing turkeys.**—*Sci. Agric.* **32,** 586-591. **3287**

Groups of turkeys, each of ten birds, 8–10 weeks old, were fed a diet containing various proportions of the insecticide aldrin (a chlorinated naphthalene compound). Concentrations in the food greater than 25 p.p.m. proved fatal in less than 10 days. There was high mortality amongst turkeys fed a diet containing 12·5 p.p.m. for 42 days and subsequently exposed to adverse weather. In those fed 3 p.p.m. there was retarded growth. Symptoms consisted of excitement or depression, muscular incoordination, convulsions, coma.—A. SEAMAN.

SIMPSON, C. F. & WEST, E. (1952). **Ergot poisoning in cattle.**—*Circ. Fla. agric. Exp. Sta.* No. S-43. pp. 6. **3288**

A note on ergotism in cattle in Florida caused by *Claviceps paspali* on Argentine Bahia grass (*Paspalum notatum*) and Dallis grass (*P. dilatatum*).—A.S.

DUBISKI, J. & LANGIER, J. (1952). Próba określenia przydatności pastewnej mączki grzybowej. **[Food value of mushroom meal for ducks and fowls.]**—*Roczn. Nauk rol.* **62,** 159-168. [English and Russian summaries. Abst. from English summary.] **3289**

Ducklings fed on a diet containing 40% of a meal alleged to be prepared entirely from *Cantharellus cibarius* developed paralysis of the legs, neck and wings on the fourth day, and 16 out of 28 died although the meal was withdrawn immediately. Cockerels, 7 weeks old, were also fed a diet containing increasing quantities of the meal; they became stunted and emaciated, but recovered quickly when the meal was withdrawn. There can be no doubt that this fungus is edible and harmless, so it would appear that the toxic effect was either due to the presence of some other, poisonous constituent in the meal, or to some other cause.

KOZŁOWSKI, B. (1953). Wyprysk u prosiąt ssących-wywołany karmieniem macior niedojrzłymi ziemniakami. **[Dermatitis in unweaned piglets caused by feeding green potatoes to the sows.]**—*Méd. vét., Varsovie.* **9,** 505. [In Polish.] **3290**

A litter of unweaned piglets developed severe dermatitis on the abdominal region and around the eyes and snout, with inappetence. The sow, which appeared to be healthy, had been fed on green sprouting potatoes. After the sow had been treated with calcium borogluconate and tonophosphate (a phosphate preparation) and its diet had been changed to milk and oats, all the piglets recovered within 14 days.

—J. R. MITCHELL.

THOROLD, P. W. (1953). **Suspected malicious poisoning.**—*J. S. Afr. vet. med. Ass.* **24,** 215-217. **3291**

At the beginning of Mau Mau disturbances 33 steers on a mission farm in Kenya suddenly developed oedematous swellings along the chest, belly and upper part of the limbs on one side. Eight of the animals died within a few days. The lesions were assumed to be due to stabbing with a sharp instrument and thus introducing an acute irritant, probably the latex of *Synadenium grantii* or some other euphorbia.

—G. P. MARSHALL.

LORA, R. P. (1953). Fotosensibilización en ovinos merinos por consumo de *Hypericum perforatum* L. **[Photosensitization in sheep following ingestion of *Hypericum perforatum* (St. John's Wort).]**—*Bol. Zootec., Cordoba.* **9,** 187-190. **3292**

L. described an outbreak, stated to be the first recorded in Spain, of photosensitization caused by *H. perforatum* in a flock of Merino sheep.—R.M.

ROHAYEM, H. (1953). **Scorpion toxin and antagonistic drugs.**—*J. trop. Med. (Hyg.)* **56,** 150-158. [Author's summary modified.] **3293**

Scorpion toxin stimulates the somatic as well as the autonomic nervous system, through excitation of autonomic centres, ganglia and autonomic nerve endings. It has a direct peripheral effect on muscles. R. recommended that a combination of atropine or of "bellafoline" (a

stable preparation of the total alkaloids of belladonna, stated to be twice as active as atropine) and the sympathicolytic drug " regitin " (2-[N-*p*-tolyl-N-(*m*-hydroxyphenyl-amino-methyl)] imidazoline) might be tested clinically, for use in addition to specific antitoxin.

GIUNCHI, G., FIDANZA, A., SCURO, L. A., SORICE, F. & BONOMOLO, A. (1953). Tossicità della terramicina per la cavia. [**Toxicity of terramycin for the g. pig.**]—*Boll. Soc. ital. Biol. sper.* **29,** 1730-1732. **3294**

The authors administered by mouth 20 mg. terramycin daily to 8 g. pigs weighing from 233–312 g. The g. pigs rapidly lost weight and died between the 5th and 10th days of treatment.—R.M.

GERRY, R. W. & WITTER, J. F. (1952). **Sulfaquinoxaline toxicity in growing chickens.**—*Proc. 24th Ann. Meet. N.E. Conf. Lab. Wkrs Pullorum Dis. Contr.* June 19 and 20 (1952). pp. 3. (No pagination.) [Mimeographed.] [Authors' summary modified.] **3295**

Histopathological observations of birds fed as much as 0·3% of sulphaquinoxaline in their all-mash ration did not reveal any of the toxic lesions, but such chickens were unthrifty. A level of 0·1% sulphaquinoxaline can apparently be fed continuously for one week without detrimental effect upon growth or feed efficiency, and for two weeks with very little effect. Although chickens fed no sulphaquinoxaline were not clinically affected by the coccidia they were carrying, as evidenced by lesions and microscopic examination of the intestines, the feeding of this drug increased growth significantly.

PHARMACOLOGY AND GENERAL THERAPEUTICS

(For treatment of specific infections see under the appropriate disease)

HARTMAN, F. W. & BEHRMANN, V. G. (1953). **The present status of plasma expanders.**—*J. Amer. med. Ass.* **152,** 1116-1120. **3296**

The authors discussed the use of gelatin, " dextran " (a proprietary glucose preparation), and polyvinylpyrrolidone as plasma expanders, with reference to experimental work in dogs. —R.M.

PAVAN, M. (1952). Die Antibiotica tierischer Herkunft. [**Antibiotics of animal origin.**]—*Z. Hyg. InfektKr.* **134,** 136-161. **3297**

P. found that a factor isolated in pure crystalline form from the ant, *Iridomyrmex humilis,* had antibiotic activity against Gram-positive and Gram-negative bacteria, and mycobacteria; it was also insecticidal. He had tested products from a variety of arthropods and other lower animal species.—G. P. MARSHALL.

ANON. (1952). Magnamycin: nog'n nuwe antibiotiese middel. [**Carbomycin : another new antibiotic.**]—*S. Afr. med. J.* **26,** 912. [In Afrikaans and English.] **3298**

Carbomycin (a product of *Streptomyces halstedii*) was effective against most Gram-positive bacteria, many of which were resistant to other antibiotics. No tissue damage in mice and rats was recorded.—R. MARSHALL.

MEGALE, F. (1951). Anestesia paravertebral lombar e sua aplicação na clínica veterinária médico-cirúrgica. [**Paravertebral anaesthesia in veterinary surgery.**] — *Arch. Esc. Vet. Minas Gerais.* **4,** 46-51. [English summary.] **3299**

A description of paravertebral anaesthesia in cattle. M. found that it was easier to locate the third lumbar nerve by the method described by Formston than by the method described by Farquharson.—I. MARTINI.

SNELL, F. D., SEGURA, G., JR., STIGMAN, S. & SNELL, C. T. (1953). **Detergents for radiological decontamination.**—*Soap, N.Y.* **29,** No. 10. pp. 42-44. **3300**

The effectiveness of soaps and synthetic detergents in removing radio-active soil from various surfaces, including rabbit skin, is increased by adding sodium hexametaphosphate. —D. POYNTER.

See also absts. **3021** (therapeutic possibilities of tubercle bacilli lipoids); **3022** (streptomycin and *iso*-nicotinic acid hydrazide); **3023** (A.C.T.H., cortisone and TB.); **3040-3041** (antibiotics in corynebacterial infection); **3045** (resistance of *E. (Listeria) monocytogenes* to sulphonamides); **3048** (streptomycin in swine plague); **3049** (sulphonamides in pasteurellosis); **3093** (effect of antibiotics in diluted bull semen on *V. fetus*); **3118** (nitrofurazone treatment of swine coccidiosis); **3184** & **3186-3187** (insecticides); **3188** demodectic mange); **3202** (phenothiazine); **3233** (antibiotic food supplements for chickens and piglets); **3264** (methionine in ketosis of pregnant ewes); **3276** (streptomycin); 3277 (otrhomin); **3285** (parathion); **3286** (tetmosol); **3287** (aldrin); **3294** (toxicity of terramycin for g. pigs); **3295** (sulphaquinoxaline toxicity); **3338** (insecticides and rodenticides); **3356** (progesterone).

PHYSIOLOGY, ANATOMY AND BIOCHEMISTRY

KULONEN, E. (1953). **On hormonal factors affecting the water-binding capacity of the skin.** — *Acta endocr., Copenhagen.* **12,** 147-152. [In English.] **3301**

To study the connexion between endocrinological factors and the water-binding capacities, skin from pigs [presumably from normal slaughtered carcasses, though not so stated] was subjected to the following treatments:—(a) dialysis through cellophane against normal saline at 37°C. for 24 hours (using minced skin); (b) incubation for 24 hours in saline to which penicillin and the respective test substances were added; and (c) incubation in cellophane bags placed respectively in distilled water, thyroxine in water, and cortisone in saline, followed by dialysis against saline as in (a).

Thyroxine appeared to lessen the extent to which the skin swelled and cortisone and oestradiol to increase it. After treated pieces of skin had been digested with pepsin, cortisone produced an increase in the viscosity of the product and in the glucosamine content. Thyroxine decreased the development of turbidity, but not the glucosamine content.—F.E.W.

IRVING, E. A. & TOMLIN, S. G. (1954). **Collagen, reticulum and their argyrophilic properties.**—*Proc. R. Soc.* Ser. B. **142,** 113-125. [Authors' summary modified.] **3302**

The authors found that attempts to differentiate collagenous and reticular fibres are invalid, and that within the limitations of the electron microscope these fibres are identical. Their silver-staining properties depend upon the complex of ground substance and fibres, and collagen can be given the argyrophilic properties of reticulum by providing the fibres with a suitable milieu: hyaluronic acid, blood plasma and blood proteins fall within this category. Silver-impregnated collagen with and without a hyaluronic acid matrix was examined under the electron microscope, with results which clarified the nature of the argyrophilia. It was concluded that there is nothing to contradict the view that mature collagen consists of closely packed reticular fibres in a modified medium.

HINES, B. E. & MCCANCE, R. A. (1953). **Pseudo-cholinesterase activity in secretions and organs of piglets and pigs.**—*J. Physiol.* **122,** 188-192. [Authors' summary modified.] **3303**

The pseudo-cholinesterase activity of blood serum, parotid and submaxillary glands and of the liver of adult pigs was 2 to 4 times higher than in new-born piglets. These findings were correlated with the histological picture. Sows' colostrum and milk contained moderate and approx. equal quantities of cholinesterase. Mixed salivary secretions of the pig had some cholinesterase activity.

BLACKBURN, P. S. & MACADAM, I. (1954). **The cells in bovine milk.**—*J. Dairy Res.* **21,** 31-36. [Authors' summary modified.] **3304**

Using a differential staining technique, the authors carried out total and differential cell counts on over 5,000 milk samples. They found that the cells in both normal and abnormal milk fell into three groups:—granular leucocytes, including polymorphs, eosinophiles and probably basophiles; lymphocytes; epithelial cells (vacuolated and non-vacuolated). They discussed the findings of some earlier workers.

ROMANELLI, V. (1953). Osservazioni e considerazioni sulle cellule staminali del midollo osseo degli animali domestici. **[Haemocytoblasts of the bone marrow in domestic animals.]**—*Arch. vet. Ital.* **4,** 7-34. [English, French, German and Spanish summaries.] **3305**

R. classified the haemocytoblasts of horses, cattle, sheep, pigs and dogs into seven different types. Five of these corresponded to the basophiloblasts (basophil myeloblasts), monoblasts, lymphoblasts, plasmacytoblasts (plasmoblasts) and piastrinoblasts (blood platelet stem cells), described as occurring in human bone marrow by Undritz (1948). R. described species differences and the proportion of each type of haemocytoblast in each species. He demonstrated the occurrence of myeloblasts in the bone marrow of cattle.—I. MARTINI.

VALTIS, D. T. & KENNEDY, A. C. (1954). **Defective gas-transport function of stored red blood-cells.**—*Lancet.* **266,** 119-125. **3306**

The authors reported certain undesirable changes that were found to take place in the oxygen and carbon dioxide dissociation curves of samples of human blood that had been stored in an acid-citrate-glucose medium at 4°C. There was a deviation to the left of the oxygen dissociation curve, signifying a reduction in the amount of CO_2 released per vol.% of the haemoglobin saturation with oxygen. The changes progressed with storage. After transfusion with such blood, the capacity of the anaemic recipient's blood to release oxygen to the tissues may be temporarily reduced. For the full development of the abnormalities, storage, acid reaction and citrate are necessary. The changes are not due to abnormal pigments, nor to alteration of the recipient's plasma pH.—F.E.W.

WIESNER, E. (1952). Blutgruppen beim Schwein; ihre Ermittlung und erbbiologische Verwertung. I. **[Blood groups in pigs.]**—*Mh. VetMed.* **7,** 67-71. **3307**

A note on the determination of blood groups in pigs. The author used a 1% suspension of blood cells, not more than one day old. Blood serum inactivated by heating to 56°C. was the most suitable.—H. BEHRENS.

WÜLLER, H. (1953). Röntgenologische Untersuchungen über das Hundeherz. II. **[X-ray studies of the dog's heart.]**—*Mh. VetMed.* **8,** 475-480. **3308**

W. carried out X-ray examinations of the hearts of 176 dogs of various breeds. He distinguished between "tonogenic" dilatation—a physiological change in the muscular tone of the heart walls, accompanied by a recognizable change of outline—and "myogenic" changes, in which the muscles of part or the whole of the heart are hypertrophied. "Tonogenic" changes were the most common among the animals examined; hypertrophic changes of the right side of the heart were more common than of the left. —A.S.

REMINGTON, J. W. & HUGGINS, R. A. (1953). **Relation of left ventricular ejection period to the Q-T interval of the electrocardiogram.**—*Amer. J. Physiol.* **175,** 185-190. **3309**

Altered haemodynamic conditions in dogs produced by injection of sympathomimetic drugs altered the ejection period acutely without changing the Q-T interval of the electrocardiogram. Recordings indicated no apparent relation between the end of ejection and the end of the T-wave.—E.V.L.

HARTHOORN, A. M. (1953). **The mechanism of circulatory imbalance.**—*Cornell Vet.* **43,** 331-343. **3310**

A study of plasma volumes, haematocrit values and blood gas analyses in dogs affected with experimental shock, showed that the plasma loss ranged from 18% to 52% and that there was a sequestration of r.b.c. outside the active circulation. A sharp reduction of the oxygen content of the blood and a decrease of its carbon dioxide combining power were also noted. Nevertheless H. concluded that the tissue anoxia in shock is due mainly to a curtailed circulation.—J. A. NICHOLSON.

SARAIKIN, I. M. (1952). **[Method of determining arterial pressure in cattle and calves].**—*Veterinariya, Moscow.* **29,** No. 8. pp. 52-55. **3311**

S. tested the arterial pressure in cattle, using an oscillosphygmometer on age groups from 10 days old to 12 years and determined the most accessible arteries. For calves up to 6 months old the upper fore limb was found to be the most suitable site for application of the sleeve, while for older animals the tail at about the 6th–7th coccygeal vertebra was the best. Sizes of sleeves were given. In all age groups the artery in the hind limb gave on average a higher pressure than that of the fore limb, the tail giving least pressure. Two tables for calves and adults were given, showing the maximum, minimum and average pressures for each of the 14 age groups tested.—F. A. ABBEY.

LEHMANN, F. (1953). Untersuchungen über die sogenannte Kapillarresistenzprüfung beim Pferd. **[Measurement of capillary resistance in horses.]**—*Schweiz. Arch. Tierheilk.* **95,** 555-568. [English, French and Italian summaries.] **3312**

After some introductory remarks on the importance of observations on capillary resistance in human medicine, L. described an apparatus for measuring the capillary resistance at the ventral side of the tongue in horses. The average of values obtained in animals with equine infectious anaemia or having a history of contact with the disease was significantly lower than that in healthy animals, but the test cannot be used diagnostically as the wide range of variation in both healthy and infected animals leads to overlapping.

Some observations were made on horses at rest and during work, but it was not possible to detect a change in resistance resulting from exercise. Change of diet, however, produced a marked change of resistance.—A.S.

WEISS, K. E. (1953). **Physiological studies on eructation in ruminants.** — *Onderstepoort J. vet. Res.* **26,** 251-283. **3313**

W. studied the physiology of eructation in sheep, goats and cattle with permanent ruminal fistulas, using forced air insufflation and direct recording of intra-ruminal pressure. He described the complex movement of abdominal viscera during the act, and gave an account of factors, including drugs, affecting the reflex. Recordings of ruminal motility under varying conditions and under the influence of drugs were reproduced in 19 figures. He discussed the findings in relation to the pathogenesis of bloat. —W. S. MARSHALL.

MORICONI, A. (1951). Sulla presenza di ghiandole e noduli cartilaginei nella doccia esofagea di ovis aries. **[Glands and cartilaginous**

nodules in the oesophageal groove of sheep.] —*Atti Soc. ital. Sci. vet.* **5,** 91-94. [English and French summaries.] **3314**

In an examination of the oesophageal groove of an unstated number of sheep M. found that there were mucous glands in about half of these sheep. In one subject some cartilaginous nodules were present throughout the length of the groove.—I. MARTINI.

HOOD, R. T., JR., CODE, C. F. & GRINDLAY, J. H. (1953). **Source of a possible gastric secretory inhibitor in canine gastric juice and effects of vagotomy on its production.**—*Amer. J. Physiol.* **173,** 270-274. **3315**

The authors found that the main source of a possible gastric secretory inhibitor was the mucosa of the gastric antrum and that the production of the inhibitor was depressed following vagal denervation of the mucosa.

CHANCE, M. R. A. (1953). **Central nervous function and changes in brain metabolite concentration. III. Glycogen in the normal behaviour of mice.**—*J. exp. Biol.* **30,** 468-474. [Author's summary modified.] **3316**

The changes in the glycogen content of different parts of the brain were studied in mice in relation to the behaviour of these animals. Increases in glycogen content were demonstrated after a jump, a fall, after the righting reaction accompanying a fall, and after aggressive behaviour in a fight. No increase was demonstrable during sleep, after running or walking, or after defensive behaviour in a fight.

It was shown earlier that external stimulation must reach convulsive intensity to produce an increase in brain glycogen, and the authors suggested that the particular forms of normal behaviour associated with increase in brain glycogen involve a ' convulsive ' type of brain activity.

' Convulsive ' in this context may mean either a disturbance of the metabolism in some or all of the brain cells, or alternatively the mobilization of cell populations for simultaneous, and probably rapid, discharge. At present there is no evidence to suggest whether either or both of these possibilities are involved.

SISSONS, H. A. (1953). **Experimental determination of rate of longitudinal bone growth.**—*J. Anat., Lond.* **87,** 228-236. **3317**

The rate of growth of the epiphyseal cartilage plate at the lower end of the femur was determined radiographically in young rabbits and rats. For the rabbit, the rate at 9 weeks of age was found to be 0·30 mm. per day and for the rat at 50 days of age, 0·18 mm. per day.—J. A. NICHOLSON.

CALISTI, V. (1952). Ricerche istochemiche sulla secrezione mucosa del collo dell'utero della vacca. **[Histochemistry of cervical secretions in cows.]**—*Nuova Vet.* **28,** 65-73. **3318**

C. stated that the reactions to staining of cervical mucus from cows indicated that constituents of the glycoprotein group are represented in its composition.—I. MARTINI.

RICHTER, C. P. & UHLENHUTH, E. H. (1954). **Comparison of the effects of gonadectomy on spontaneous activity of wild and domesticated Norway rats.** — *Endocrinology.* **54,** 311-322. [Authors' summary modified.] **3319**

Gonadectomy greatly reduced the spontaneous running activity of domesticated brown rats (*R. norvegicus*), but had little effect on the activity of wild brown rats. After gonadectomy, the seminal vesicles and the uterus atrophied in both the wild and domesticated rats.

The adrenal glands, which are normally heavier in wild rats, became even heavier after gonadectomy in wild males and to a lesser extent in wild females; but decreased in domesticated females and increased slightly in domesticated males. Sudan IV stained frozen sections showed that the adrenal glands of wild Norways, both control and gonadectomized, contained more lipoid than those of domesticated rats.

To explain the differences of the effects of gonadectomy in the two strains, the authors suggested that running activity of wild rats is maintained largely by adrenal secretions whereas the activity of domesticated rats is maintained largely by gonadal secretions. The findings indicated that during the process of domestication of the brown rat, the gonads may have assumed the control of functions that are predominantly controlled by the adrenal glands in the wild state.

WHITE, A. (1953). **Hormones of the adenohypophysis.**—*Bull. N.Y. Acad. Med.* **29,** 11-23. **3320**

W. discussed the physiology of the anterior lobe of the pituitary gland and the role of anterior pituitary hormones in fat metabolism, hypertension, neoplasia, and infectious diseases. —R.M.

VAN DYKE, H. B. (1953). **The regulation of water excretion by the neurohypophysis.**—*Bull. N.Y. Acad. Med.* **29,** 24-33. **3321**

The author discussed anatomical, physio-

logical and clinical aspects of the regulation of water excretion by the neurohypophysis. He defined the latter as the supraoptic and paraventricular nuclei, their axons, and the posterior lobe of the pituitary, in which these axons terminate. He referred to the effects of excess and deficiency of antidiuretic hormone.—R.M.

JAKOBSON, T. & HORTLING, H. (1954). **Studies on the endocrine regulation of the number of circulating eosinophil cells in the rat.**—*Acta endocr., Copenhagen.* **15,** 265-281. [In English. Authors' summary copied *verbatim.*] **3322**

As many reports in the literature on the endocrine regulation of the eosinophil blood cell are somewhat controversial a comprehensive study in rats on this subject was carried out. After adrenalectomy a transient rise in the number of circulating eosinophil cells (eo) was observed. After hypophysectomy a greater and more prolonged rise was seen. Adrenaline did not cause any decrease in eo in rats adrenalectomized at different times before the test nor in the hypophysectomized animals.

Ascorbic acid administered 12 hours before the administration of adrenaline inhibited the adrenaline eosinopenia to some extent. In hypophysectomized rats a slight fall in eo was recorded after ascorbic acid pretreatment which was not seen in untreated animals.

The sympathicolytic agents dihydroergotamin and hydergin blocked the adrenaline eosinopenia when administered 3 to 4 times at hourly intervals before the adrenaline. Cold stress seemed to provoke a smaller drop in eo in rats after 2 previous injections of hydergin than in untreated rats.

When adrenalectomy was performed several weeks previously, adrenaline injections to such rats pretreated with phenobarbital caused a significant drop in eo, although phenobarbital or adrenaline given separately did not produce any eosinopenia in such animals. This effect was not seen in more recently adrenalectomized rats.

After splenectomy the eosinophil level was increased. This level was not further increased by a subsequent adrenalectomy. Splenectomy or splenectomy combined with adrenalectomy did not significantly change the eosinophil response to adrenaline.

In adrenalectomized and hypophysectomized rats, adrenaline and cold stress caused insignificant rises in eo. Prolonged cold stress caused a significant increase in eo. A potent liver extract did not cause any eosinophilia.

TIMIRAS, P. S. (1953). **Phagocytosis and the hypophysis - adrenocortical system.** — *Acta endocr., Copenhagen.* Suppl. No. 11. pp. 118. [In English.] **3323**

In a study of the effects of various stresses on the phagocytic activity of the reticulo-endothelial system in rats, T. subjected them to the injection of histamine, formaldehyde, colchicine and other substances, or to low temperatures, forced exercise, or spinal transection.

The ingestion of Indian ink particles by reticulo-endothelial elements in the lungs, kidneys, adrenals, and hibernating gland was taken as an index of phagocytic activity. There was an increase of this activity after all of the kinds of stress mentioned.

Under normal conditions phagocytic activity was unaltered after adrenalectomy, but after a period of stress it was found that there was no corresponding increase in activity until adrenal cortical extract was administered: in intact animals adrenal cortical extract enhanced the increase in phagocytosis produced by stress.

Hypophysectomy led to a decrease in phagocytosis, and hypophysectomized animals did not react to stress. The administration of adrenocorticotrophic hormone (A.C.T.H.), of A.C.T.H. with somatotrophic hormone (S.T.H.), and, to a lesser extent, of S.T.H. alone, restored the ability to react to stress by increased phagocytosis.

These results indicated that the pituitary and adrenal glands are concerned in regulating phagocytosis in the reticulo-endothelial system. —A.S.

JONES, I. C. & ROBY, C. C. (1954). **Some aspects of zonation and function of the adrenal cortex. I. The effects of hypophysectomy on the adrenal cortex of the adult mouse.**—*J. Endocrin.* **10,** 245-250. **3324**

JONES, I. C. & SPALDING, M. H. (1954). **Some aspects of zonation and function of the adrenal cortex. II. The rat adrenal after enucleation.**—*Ibid.* 251-261. **3325**

JONES, I. C. & WRIGHT, A. (1954). **Some aspects of zonation and function of the adrenal cortex. III. Self selection after adrenal enucleation in rats. IV. The histology of the adrenal in rats with diabetes insipidus.**—*Ibid.* 262-265 & 266-272. [Authors' summaries slightly modified.] **3326**

I. Male adult mice, 80 days after hypophysectomy, show approximately the same pattern of sodium and potassium intake and sodium, potassium and water output as normal mice. The healthy remnant of adrenal cortex left after the operation is thought to be respons-

ible for the day-to-day competence of the hypophysectomized animal in salt-electrolyte metabolism. The authors described the histology of the cortex. It was shown that, with the injection of A.C.T.H., a cortex of normal appearance can be regenerated from the persistent zona glomerulosa of the long-term hypophysectomized mouse.

II. Male adult rats whose adrenal glands had been enucleated and allowed to regenerate showed in one group normal competence to handle administered water loads, and in another a slow diuresis after this functional test. In the latter case the predisposing factor is cortical insufficiency and not the absence of the medulla. Even those animals with regenerated enucleated adrenals which gave a normal response to water loads, nevertheless still showed some differences from normal in regard to sodium and potassium metabolism. The authors described the histology of the adrenal glands in the different groups.

III. Male adult rats, with established drinking patterns were given the choice of saline or tap water to drink, immediately after adrenal enucleation. Both saline and water were taken, but by the 6th day after operation the rats had returned to drinking predominantly tap water. The adrenals at this stage showed a small compact cortex, but no distinguished zona glomerulosa, and they appeared to be composed for the most part of cells in ' fascicles '. Adrenalectomized animals chose saline, drinking more and more *pari passu* with time. Other short-term enucleated animals were injected with A.C.T.H., and the tendency for the regenerating cortex to form in ' fascicles ' was very pronounced.

IV. The adrenal of male and female rats with persistent diabetes insipidus showed a prominent zona fasciculata and zona reticularis. The zona glomerulosa was narrow or absent.

The authors discussed the results of this and of previous work in the series; they concluded that control of salt-electrolyte metabolism cannot be ascribed to the zona glomerulosa. It is probable that the zona fasciculata is responsible for most of the adrenocortical secretions. The zona glomerulosa is a vegetative backwater of cells, which is able to produce minimal amounts of adrenocortical secretions without stimulation by pituitary hormones, but is only of significance when the latter are absent. Rising amounts of circulating adrenocorticotrophic hormone (A.C.T.H.) can transform the zona glomerulosa into actively secreting cells of the zona fasciculata type. After cessation of such activity the zona glomerulosa re-forms, as the amount of A.C.T.H. will maintain only a certain volume of zona fasciculata (and zona reticularis) against the rigid limiting inner circumference formed by the medulla; some of the cells derived from the chief area of cell division in the outer part of the zona fasciculata do not mature to cells of the zona fasciculata type, but form zona glomerulosa cells. It is thought that cell migration occurs from the cells of the outer region of the zona fasciculata to the zona reticularis and that this is, normally, a slow process.

BAAR, H. S. (1954). **Foetal cortex of the adrenal glands.**—*Lancet.* **266,** 670-672. **3327**

This is a survey of literature on the "foetal" or transient zone of the adrenal cortex in human beings. B. described the various degenerative stages which occur after birth until growth and differentiation of the permanent cortex begin during the second year of life. He discussed the function and biological significance of this transient zone. There is apparently no identical zone in animals; the " transient cortex " in the mouse and the " juvenile cortex " in the rat differ fundamentally from it in certain respects.

—A. SEAMAN.

KENDALL, E. C. (1953). **Hormones of the adrenal cortex.**—*Bull. N.Y. Acad. Med.* **29,** 91-100. **3328**

A general discussion.—R.M.

LOTZ, W. E., TALMAGE, R. V. & COMAR, C. L. (1954). **Effect of parathyroid extract administration in sheep.** — *Proc. Soc. exp. Biol., N.Y.* **85,** 292-295. [Authors' summary modified.] **3329**

The authors studied the effect of administration of parathyroid extract upon the removal of radio-calcium and radio-phosphorus from the long bones of sheep and its subsequent excretion in the urine. Over a 5-day period of treatment, radio-phosphorus but not radio-calcium was removed from the bone. The parathyroid extract produced only a slight rise in the urinary excretion which might be accounted for by the elevated serum phosphorus. Daily doses of 1000 i.u. of parathyroid extract over a 7-day period resulted in elevation of the serum phosphorus levels but not of serum calcium. They concluded that in the sheep, parathyroid extract acted directly upon the bone and that any effect upon the kidney was minor in the dosage range and time periods employed; also, it appeared that phosphorus metabolism was much more influenced than was calcium metabolism.

KOTHARE, S. N. & SEN, P. K. (1953). **Healing of the myocardial wound at the site of auricu-**

lar appendectomy in dogs.—*Indian J. med. Res.* **41,** 373-377. [Authors' summary modified.] **3330**

Surgical removal of the appendix of the right auricle of the heart was performed in 15 dogs and the animals were observed for varying intervals. Morbid anatomical and histological changes at the site of the amputated auricle were studied.

MILNE, A. H. (1954). **The humps of African cattle types.**—*Aust. vet. J.* **30,** 7-8. **3331**

Thorpe, in an earlier paper [*V.B.* **23,** 3484] stated that the hump of a zebu consists of a very much enlarged M. rhomboideus cervicis. M. pointed out that in the African Shorthorned zebu the hump is predominantly fatty, being a musculo-adipose development of the thoracic part of the anterior portion of the M. rhomboideus. In both the Longhorned zebu (South African Afrikander) and Sanga (African) types the hump is as described by Thorpe, and no true fat storage takes place.—K. G. JOHNSTON.

BONFANTE, G. (1953). Applicazione della cromatografia su colonna nella purificazione di estratti petrol-eterei di carotene ottenuti da foraggi, fieni e insilati. **[Application of chromatography in the purification of petroleum-ether extracts of carotene obtained from fresh and dry plant material.]**—*Clin. Vet., Milano.* **76,** 304-308. [English and French summaries.] **3332**

B. outlined his procedure for chromatography, according to the method described by Swett (1912), using the alumina adsorption described by Brockmann (1943), and illustrated the results thus obtained with fresh and dried plant material, as well as with silage.

—G. P. MARSHALL.

PUBLIC HEALTH, VETERINARY SERVICES AND VETERINARY EDUCATION

OLSON, J. C., JR., WILLOUGHBY, D. S., THOMAS, E. L. & MORRIS, H. A. (1953). **The keeping quality of pasteurized milk as influenced by the growth of psychrophilic bacteria and the addition of aureomycin.** — *J. Milk Tech.* **16,** 213-219. **3333**

Aureomycin at a concentration of 0·2 μg./ml. did not improve the keeping quality of pasteurized milk, which was lowered by psychrophilic bacteria present at a level of < 1 per 2 ml. milk.—A. SEAMAN.

SEELEMANN, M. (1952). Die Milchhygiene vom Standpunkt des Veterinärhygienikers. **[The veterinary aspect of milk hygiene.]** — *Zbl. Bakt. I. (Orig.)* **158,** 245-259. **3334**

S. discussed measures for the improvement of milk hygiene in Germany. He emphasized the need for better control of TB., contagious abortion and mastitis and advocated stricter supervision of cowsheds, payment according to quality and the sale of higher grade milk for children.—E. J. L. SOULSBY.

TOLGAY, Z. (1953). Ultraviyole ışınlarının besin kontrolunda tatbik imkânları. **[The use of ultra-violet light in food inspection.]**—*Thesis, Ankara.* pp. 60. [In Turkish. English and German summaries. Abst. from English summary.] **3335**

A characteristic fluorescence occurs when meat containing *Cysticercus bovis* is exposed to ultra-violet light, even after the meat has been minced. It was possible to differentiate between cow's, buffalo's and goat's milk by means of fluorescence in u.v. light. For this purpose the milk to be examined was shaken up with ether and concentrated salt solution.

Shell-eggs showed a characteristic fluorescence when fresh (up to 10 days old) and when very stale (3–10 months old). The adulteration of butter with 10% cotton-seed oil was detected by a bluish-yellow fluorescence.—R.M.

GOMUTPUTRA, C. & FABIAN, F. W. (1953). **Acids and chloramphenicol as sanitizing agents for meat contaminated with food poisoning organisms.**—*J. Milk Tech.* **16,** 220-227. **3336**

Acetic acid was more effective in destroying staphylococci and salmonella on pork or beef than monochloracetic and trichloracetic acid, or chloramphenicol. The authors recommended dipping in distilled vinegar for fresh meat on display or in storage.—A. SEAMAN.

ALEANDRI, M. (1953). Malattie dei topi e dei ratti trasmissibili all'uomo ed agli animali domestici. **[Diseases of rats and mice transmissible to man and domestic animals.]**—*Zooprofilassi.* **8,** 184-190. **3337**

The author outlined methods of rodent control: including the use of such poisonous gases as hydrocyanic acid and sulphur dioxide, the use of pathogenic micro-organisms such as *Salmonella typhi-murium* var. *danysz* (now regarded with disfavour), and the use of coumarin derivatives of the "warfarin" type in baits. The latter method, combined with D.D.T. is being applied in areas where plague occurs. He gave a brief outline of diseases transmissible to man or to domestic animals by rats and mice.

—I. MARTINI.

ANON. (1952). **Insecticides and rodenticides. Recommendations for use.**—*Publ. Hlth. Rep., Wash.* **67,** 455-458. **3338**

A description of methods for controlling insect and rodent pests.—G. B. S. HEATH.

ANON. (1951). **The domestic animal infectious diseases control law and regulations.** pp. 178. Tokyo: Minist. Agric. & Forestry. [In English.] **3339**

The text of the law is divided into 6 chapters (66 articles):—I. General provisions; II. Prevention of infectious diseases; III. Control of the spread of notifiable diseases; IV. Animal quarantine inspection on export and import; V. Miscellaneous provisions; VI. Penal provisions.

Chapter II defines the measures which should be taken by the governor or prefecture and the persons concerned in the prevention of infectious diseases.

Chapter III defines the measures (notification of outbreak, isolation and slaughter of diseased animals, burning of carcasses and other contaminated materials, vaccination, restrictions of movement) which should be taken to prevent and control the spread of notifiable disease when it occurs. The following diseases are designated as notifiable:—Rinderpest, bovine contagious pleuro-pneumonia, F. & M. disease, " bovine influenza ", infectious encephalitis (cattle, horses, sheep, goats, pigs), rabies, anthrax, blackleg, haemorrhagic septicaemia, brucellosis, TB., piroplasmosis in cattle and horses, trypanosomiasis in cattle and horses, anaplasmosis, trichomoniasis, glanders, equine infectious anaemia, equine paratyphoid, sheep pox, sheep scab, swine fever, swine erysipelas, fowl cholera, fowl pest, Newcastle disease, pullorum disease.

Chapter IV prohibits importation of any object dangerous for animal health, and also forbids export and import of animals and animal products unless they are inspected at an animal quarantine station.

Chapter V contains miscellaneous provisions not included in other chapters.

Enforcement regulations were established on the 31st May 1951 for the introduction of the law.—KOGI SAITO.

STEINBRÜCK, H. (1950). Zur Kommunalisierung der Kreistierarztstellen. **[Decentralization of veterinary services in Germany.]**—*Dtsch. tierärztl. Wschr.* **57,** 51-54. **3340**

A general account of certain conditions relating to the veterinary services in Western Germany in the immediate post-war years, with comments on the organization of the services in earlier years.—W. TATHAM THOMPSON.

ANON. (1953). **Veterinary services in Sweden. The Royal Veterinary College. The State Veterinary Medical Institute. The Veterinary Administration.** pp. 69. Sweden: AB Duvbo Tryckeri. [In English.] **3341**

The first half of this booklet gives an account of the organization of the Royal Veterinary College, Stockholm, and of the work of its various departments. It also describes the State Veterinary Medical Institute, which has a dual function, providing diagnostic service in addition to its Scientific research activities. The Institute is run by the Ministry of Agriculture. The remainder of the booklet outlines the organization of the state civil and military veterinary services.—A.S.

KOROPOV, V. M. (1952). **[Influence of the academician M. F. Ivanov's work on the development of veterinary science.]**—*Veterinariya, Moscow.* **29,** No. 8. pp. 12-17. [In Russian.] **3342**

By his wide outlook and foresight, Ivanov had a great influence on the development of veterinary science in Russia from about 1900 onwards. He fostered belief in vaccines for the control of disease, coupled with rational management and the raising of stock out-of-doors in order to strengthen their resistance, and emphasized that all those concerned with husbandry should cooperate because each is concerned in the general welfare. He was instrumental in introducing in Russia the study of biology, parasitology and zootechny into the veterinary field. He was instrumental in opening veterinary clinics and bacteriological research laboratories. He also suggested raising new breeds of animals to suit particular climatic conditions and of hybrids resistant to certain diseases.

—F. A. ABBEY.

See also absts. **3014** (TB. in cattle transmitted to man); **3015** (TB. in eggs); **3017** (TB. in man from a horse): **3020** (tubercle bacilli in sewage); **3062** (food poisoning from goose eggs); **3195** (dissemination of *T. saginata* by trains).

LIVESTOCK HYGIENE

WHITE, E. G. (1954). **Preventive veterinary medicine among farm livestock.** — *Advanc. Sci.* **10,** 365-369. **3343**

A general discussion on the subject in relation to the problem of food supply to human beings, and to animal health.—R. MACGREGOR.

REPRODUCTION AND REPRODUCTIVE DISORDERS

SALISBURY, G. W., BRATTON, R. W. & FOOTE, R. H. (1952). **The bull as one cause of delayed returns to service in artificial breeding.** —*J. Dairy Sci.* **35,** 250-255. [Authors' summary modified.] **3344**

An account of further statistical work [see also *V.B.* **24,** 1696 & 1697] comparing the efficiency of semen from various bulls on the basis of embryonic mortality. There were significant differences between bulls and the level of embryonic mortality was negatively and highly significantly correlated with the original fertility level of bulls as measured by one-monthly non-returns, the correlation coefficients being in the neighbourhood of −0·6 to −0·7. A significant effect of the season of the year on apparent embryonic mortality was indicated, the maximum effect being produced from inseminations in January, February and March, the minimum being in May and June.

KIRSCH, W., KORDTS, E. & SCHOLTYSSEK, S. (1952). Untersuchungen über die Spermaqualität von Bullen als Indikator für die Beurteilung von Fütterungs- und Haltungseinflüssen. I. Mitteilung. Einfluss von engem und weitem Eiweiss-Stärkeeinheiten-Verhältnis, von Rapsextractionsschrot und Blutmehl auf die Spermqualität von jungen Bullen. **[Examination of semen quality to evaluate the effects of feeding and management on the bull. I. Effect of protein : starch equivalent ratio, of extracted rape seed meal, and of blood meal.]**—*Kieler Milchw. ForschBer.* **4,** 485-501. [English, French and Spanish summaries.] **3345**

The authors studied the properties of semen from two bulls fed rations of varying composition. They found that semen of better quality was produced when the protein/starch equivalent ratio was 1 : 4 than when this ratio was 1 : 7. When added to the diet, rape seed meal decreased, and blood meal increased, semen quality.—R.M.

WHITE, I. G., BLACKSHAW, A. W. & EMMENS, C. W. (1954). **Metabolic and motility studies relating to the low temperature storage of ram and bull spermatozoa.**—*Aust. vet. J.* **30,** 85-94. [Authors' summary slightly modified.] **3346**

Bull and ram spermatozoa which were thawed quickly after slow freezing to −79°C. in a phosphate fructose diluent, showed little respiratory or glycolytic activity and were immotile. A large number of bull and ram spermatozoa survived freezing in a diluent containing 7·5% glycerol and 1·25% of arabinose, but to a lesser extent in a diluent containing only glycerol. These cells, however, also had little metabolic activity and rapidly became immotile, particularly at 37°C.

Neither 7·5% glycerol nor 1·25% arabinose alone significantly affected the oxygen uptake, glycolysis or motility of bull spermatozoa in a phosphate fructose diluent. Equilibration for 1 day in the glycerol-arabinose diluent, prior to slow freezing, did not improve the survival of bull spermatozoa on rapid thawing. Egg yolk increased the oxygen consumption and improved the viability of bull spermatozoa thawed after freezing. It had a similar effect on the unfrozen control specimens.

The authors presented evidence that: (a) glycerol and arabinose can be oxidized by ram and bull spermatozoa, and that (b) lactic acid can be produced by ram and bull spermatozoa from glycerol, but not from arabinose.

HAEGER, O. (1951). Die Wirkung der Akridinfarbstoffe auf die Lebensfähigkeit der Spermien. **[The action of acridine stains on the viability of spermatozoa.]** — *Inaug. Diss., Munich.* pp. 40. **3347**

H. discussed the artificial insemination of cows with uterine infections. Experiments *in vitro* revealed that in semen mixed with a glucose solution containing rivanol (1 : 30), and egg yolk, in the proportion of 1:8:1, spermatozoa were motile for up to 144 hours, whereas in semen alone motility ceased after 60 hours. When trypaflavine in glucose soln., and egg yolk, were added to semen there was a similar, though less marked, stimulative effect. He concluded that rivanol might prove useful in the artificial insemination of cows with uterine infection.—A.S.

LAKE, P. E. & SMILES, J. (1952). **Some observations on the morphology of fowl spermatozoa.**—*Proc. Soc. Study Fertil., Lond. Conf.* No. 4. pp. 18-20. **3348**

The development of the acrosome region of the fowl spermatozoon was followed by direct ultra-violet micrography supplemented by the ultra-violet phase-contrast method; this revealed the origin and function of the manchette (caudal sheath).

MANN, T. (1954). **On the presence and role of inositol and certain other substances in the seminal vesicle secretion of the boar.**—*Proc. R. Soc.* Ser. B. **142,** 21-32. [Author's summary slightly modified.] **3349**

meso-Inositol was identified as a major

chemical constituent of the seminal vesicle secretion in the boar, and isolated in pure crystalline state.

The concentration of inositol in the vesicular secretion exceeds considerably the amounts hitherto recorded for material of either plant or animal origin. The fluid secreted by boar seminal vesicles contains 2 to 3 g. inositol in 100 ml. The dry matter of the fluid is about 15 g./100 ml., one-third of which is dialyzable; of this between 40 and 70% is composed of inositol.

M. described two methods by which it is possible to obtain several grams of pure crystalline inositol from the seminal vesicle secretion of a single animal.

He described certain other characteristic features of the boar vesicular secretion, including the occurrence of substances such as fructose as well as a hitherto unidentified carbohydrate, also of ergothioneine and potassium citrate; and an almost complete absence of sodium chloride.

One of the functions of inositol and citrate appears to be the maintenance of the osmotic pressure in the seminal vesicle secretion, and probably also in the semen of the boar. The secretion of inositol, ergothioneine, fructose and citric acid, by the seminal vesicles, sets in at an early stage of the development of the boar, a considerable time before the maturation of spermatozoa.

HAWK, H. W., TYLER, W. J. & CASIDA, L. E. (1954). **Some factors affecting age at puberty in Holstein-Friesian heifers.** — *J. Dairy Sci.* **37,** 252-258. [Authors' summary copied *verbatim.*] **3350**

The effects of inbreeding, calfhood scouring, and season of birth on age at first heat were studied in six sire-groups of Holstein-Friesian heifers, totalling 67 animals. No statistically significant differences were found in puberal age among the sire-groups. Inbreeding and calfhood scouring were found to delay age at puberty and also to retard calfhood growth significantly. A highly significant negative correlation was found between age at puberty and weight at 3 or 6 months of age. Adjustment of puberal ages for differences in weight at 3 or 6 months yielded evidence suggesting that inbreeding and/or calfhood scouring increased age at puberty by retarding growth. Heifers born during the spring were found to reach puberty at a significantly earlier age than those born during other seasons of the year. No evidence was found that age at puberty is associated with the readiness with which heifers conceived.

RICHES, J. H. & WATSON, R. H. (1954). **The influence of the introduction of rams on the incidence of oestrus in Merino ewes.**—*Aust. J. agric. Res.* **5,** 141-147. **3351**

During the spring months a majority of the ewes which were run continuously with vasectomized rams, did not show oestrus. A much higher proportion of ewes from a reservoir flock, which were run with rams for one month only, exhibited oestrus. During the rest of the year most of the ewes in both groups showed signs of oestrus.—A. W. BLACKSHAW.

THOMSON, A. D. P. (1954). **The onset of oestrus in normal and blinded ferrets.**—*Proc. R. Soc.* Ser. B. **142,** 126-135. [Abst. from author's summary.] **3352**

Comparison of the dates of onset of oestrus in large numbers of normal and blinded mature anoestrous ferrets, kept under ordinary laboratory conditions, or exposed to added light in the winter months, revealed that ferrets blind to form vision and presumably blind also to light vision, tend to come into heat in the spring of the first year after blinding, or, failing that, in the spring of the second or even the third year after section of the optic nerves.

It would therefore seem that the timing of the breeding season can hardly be due to the effects of increasing hours of daylight operating through the eyes, even although retinal stimulation can, in certain circumstances, precipitate the onset of oestrus.

AUSTIN, C. R. & BRADEN, A. W. H. (1953). **An investigation of polyspermy in the rat and rabbit.**—*Aust. J. biol. Sci.* **6,** 674-692. **3353**

This is a more detailed account of work already reported [*V.B.* **23,** 3504] on the frequency of occurrence of polyspermy in rats and rabbits, and the cytology of the living polyspermic eggs as seen with the phase-contrast microscope. Under normal mating conditions about 1·2% of penetrated rat eggs and 1·4% of pronucleate rabbit eggs were polyspermic, but after delayed mating the incidence of polyspermy rose to 8·8% in rat eggs and 16·4% in rabbit eggs. In the polyspermic rat egg the chromosome complements from the female pronucleus and the male pronuclei all took part in the formation of the first cleavage spindle, and eggs at 2-, 4- and 8-cell stages were quite normal in appearance except for the presence of the extra sperm mid-pieces.

—M. H. HARDY.

GARM, O. & SKJERVEN, O. (1953). **A simple test for diagnosis of early pregnancy and endo-**

crine changes in the reproductive organs in the cow.—*Proc. XVth Int. vet. Congr. Stockholm.* 1953. **2,** Pt. 1. pp. 770-772. [In English. French and German summaries.] **3354**

At oestrus, cervical mucus smears examined unstained with a low-power microscope reveal a typical fern-like formation in the thicker portions of the film. The absence of this fern-like formation in smears indicates the presence of a functionally potent corpus luteum but not justifying the presumption of pregnancy since they may result from the presence of a persistent corpus luteum. The absence of the fern-like structures during an interval of a few days from the 21st day after insemination justifies a definite diagnosis of pregnancy. The presence of this manifestation in smears may be used to discover sexually active animals in silent heat.

—Ian Newsam.

Renatus, H. & Englert, H. K. (1954). Über die Feststellung früherer Gravidität beim Schlachtschwein. **[Confirmation of previous pregnancy in slaughter swine.]**—*Dtsch. tierärztl. Wschr.* **61,** 118-120. **3355**

There is a marked increase in the number of elastic fibres in the walls of the uterine arteries during pregnancy. This change persists after pregnancy, so that the examination of a suitably stained section readily establishes whether or not a slaughter pig has been pregnant. There are also characteristic changes in the peripheral branches of the median uterine artery. These branches are straight in virgin animals, but are coiled after the first pregnancy and become more closely coiled with successive pregnancies.—A.S.

Woelffer, E. A. (1953). **Use of progesterone to control habitual abortion in cattle.**—*J. Amer. vet. med. Ass.* **123,** 505-507. **3356**

A fluid injection of progesterone was used, so prepared as to be precipitated out by the tissue fluids and thus form an implant. W. reported the results of treating 7 cases, which had on the average aborted two and a half times each previously, usually at from six to seven and a half months; 500 mg. were implanted every 10th day in view of the results obtained by McDonald *et al.* [*V.B.* **23,** 1395] and continued to within three weeks of term, from about the end of the sixth month. All seven animals calved normally at full term.

—F. L. M. Dawson.

Hardy, M. H., Biggers, J. D. & Claringbold, P. J. (1953). **Vaginal cornification of the mouse produced by oestrogens *in vitro*.** [Correspondence.] — *Nature, Lond.* **172,** 1196-1197. **3357**

The addition of various oestrogens to cultures of mouse vagina showed that these substances are capable of producing vaginal cornification *in vitro*. This confirms that the intravaginal action of true oestrogens is purely local and that they do not have to be activated by the liver before they are capable of exerting their action on the vagina. Furthermore hyperaemia does not appear to be essential for vaginal cornification.—J. A. Nicholson.

Noble, R. L., Plunkett, E. R. & Graham, R. C. B. (1954). **Direct hormone inactivation by extracts of *Lithospermum ruderale*.** — *J. Endocrin.* **10,** 212-227. [Authors' summary modified.] **3358**

The authors described the inhibiting action of extracts from *L. ruderale* (lithosperm) when mixed with various hormones and injected into rats.

Pituitary gonadotrophin, prolactin (luteotrophin), thyrotrophin and pregnant mares' serum gonadotrophin (PMS) are readily inactivated. Chorionic gonadotrophin is less readily affected, and pituitary growth hormone and A.C.T.H. are unaffected by the concentration of lithosperm which inactivates the other hormones. Insulin and posterior pituitary hormones are equally unaffected.

PMS 'inactivated' by lithosperm is still capable of causing marked interstitial cell stimulation of the ovary of the intact rat with resulting oestrogen production. Hypophysectomy abolished this reaction.

The authors described various factors influencing the *in vitro* inactivation, so that a standard method could be developed for testing fractions obtained in purifying lithosperm extracts. They discussed some preliminary extraction methods.

Ajello, P. (1954). Rilievi sulle modificazioni istologiche dell'utero nel corpo luteo persistente della bovina. **[Histology of the uterus of the cow with persistent corpus luteum.]**—*Zootec. e Vet.* **9,** 47-56. [English summary.] **3359**

In 16 cows, each with a persistent corpus luteum, the author found congestion of the superficial layers of endometrium and infiltration by plasma cells and lymphocytes, and a mixture of cells and epithelial débris in the lumen of the uterus. The deeper layers of endometrium were less affected, and the muscular coat and serosa were normal. He attributed this "anti heat" condition to follicular and luteinizing hormones from the corpus luteum and anterior lobe of the hypophysis. Persistence of the corpus luteum

is therefore the cause of the endometrial condition; and not caused by it as hitherto believed.
—R. MACGREGOR.

DIERNHOFER, C. (1953-54). Considerazioni di medicina veterinaria in merito al problema della fecondità degli animali nonchè dell' incremento degli allevamenti nelle zone montane. **[The problem of animal fertility in the mountainous regions.]**—*Zootec. e Vet.* **8,** 330-336; **9,** 4-16. **3360**

Much sterility is due to protein starvation shown by anoestrus, and due to overcrowding pastures with high milk yield cows. In a few places, a mineral deficiency (calcium, phosphorus or cobalt) can be demonstrated. Organic diseases (brucella, vibrio and trichomonas infections) are partly to blame, but it is hoped that they will be controlled with the increase in artificial insemination.—R. MACGREGOR.

FORTNER, J. (1953). Über den Einfluss der Vererbung bei Rinderleukose und Schweinerotlauf. **[Heredity in bovine leucosis and swine erysipelas.]** — *Proc. XVth Int. vet. Congr. Stockholm.* 1953. **2,** Pt. 1. 887-892. [In German. English and French summaries.] **3361**

F. compared bovine leucosis with hereditary leucosis in mice, with which it is essentially identical in clinical, anatomical, and histological aspects. He concluded that bovine leucosis is most probably hereditary, quoting the observation frequently made in practice, that bovine leucosis runs in families, and that affected animals should therefore not be used for breeding.

He also described experiments showing that different families of pigs, exposed to swine erysipelas under identical conditions, reacted very differently, some developing the disease in a very mild form, while in others it proved fatal. Subsequent generations of the same families reacted identically, so that in F.'s opinion there was evidence that resistance and susceptibility to the disease were inherited.—A.S.

KOVÁCS, J. (1953). Embryologische Untersuchungen über den physiologischen Nabelbruch. **[Embryological study of umbilical hernia.]** — *Acta vet. hung.* **3,** 97-112. [In German; Russian summary.] **3362**

So-called acquired as well as congenital umbilical hernias, as seen mainly in the horse and dog, are due partly to the physiological condition in which routinely, quite early in development, a part of the gut comes to lie inside the umbilical cord. Primary and secondary types are well seen in 12–15 mm. dog embryos; in the latter, liver lobes may be involved, and the gut is looped; this type develops from the sac of the primary type while the abdominal viscera are forming, the primary condition being due in part to the pulling effect of the yolk sac. The mechanism of the return of the hernial contents to the abdomen later in development was also considered. Some evidence was obtained that the tendency to develop " acquired " hernia is in fact heritable.—F. L. M. DAWSON.

GILMAN, J. P. W. & STRINGHAM, E. W. (1953). **Hereditary umbilical hernia in Holstein cattle.**—*J. Hered.* **44,** 113-116. **3363**

The authors examined the incidence of umbilical hernia in the progeny of 7 Holstein bulls; the sires had various degrees of relationship to a common ancestor previously suspected clinically of being a heterozygous carrier of this defect. Of 2,045 calves, 998 were males and 1,047 females. The incidence was 1·06% in the females as compared with 0·51% in a small proportion of the males (the remainder having been disposed of as vealers). The incidence was restricted to the progeny of 3 bulls which had a 25–35% direct relationship to the common ancestor; the relationship to this ancestor of bulls which left no herniated offspring ranged from 0 to 12·5%. It was concluded that one or more pairs of autosomal recessive factors of rather low frequency are responsible, but that the economic importance of the defect might increase as a result of artificial insemination.
—F.E.W.

KOCH, P. (1953). Brachygnathie und Agnathie als Erbleiden. **[Brachygnathia and agnathia as hereditary diseases.]** — *Proc. XVth Int. vet. Congr. Stockholm.* 1953. **2,** Pt. 1. 900-902. [In German. English and French summaries.] **3364**

A general discussion of brachygnathia and agnathia in domestic animals, with special reference to cattle. K. considers the conditions to be hereditary, mentioning that the Department of Animal Breeding at the Free University of Berlin possess a half-brother and half-sister which have inherited a shortened lower jaw from a phenotypically normal bull which is known to have transmitted the condition to a number of offspring. It is intended to carry out genetical studies on the two animals mentioned.—A.S.

BUTLER, L. & ROBERTSON, D. H. (1953). **A new eye abnormality in the house mouse.**—*J. Hered.* **44,** 13-16. [Abst. from authors' summary.] **3365**

Eye abnormalities which appeared in a strain of mice from McGill University could be

classified into 4 categories, 2 of which were found to represent the known mutant " lens rupture ", the other 2 being grouped together as a gene entity called " squint cataract " (*sq.*). Individuals of the line in which the latter defect appeared were all " waved-2 "; on outcrossing to C57 all the " *sq.*" individuals in the back-cross and F2 generations were also " waved-2 ". The " *sq.*" character was found to segregate independently of " waved-2 ", but it occurs in the phenotype only when " waved-2 " is present. It was found on analysis to have a penetrance of 81% and no apparent rule for the 3 types of expression: squint, cataract, and squint in one eye and cataract in the other.

GODFREY, E. F., BOHREN, B. B. & JAAP, R. G. (1953). **" Jittery ", a sex-linked nervous disorder in the chick.** — *J. Hered.* **44,** 108-112. **3366**

The authors described a condition in female day-old chicks referred to as " jittery ", the main signs of which were rapid shaking of the head, and retraction of the head on the back. Histological examination revealed degeneration of the Purkinje cells of the cerebellum. Only 1–2% of the affected fowls reached maturity. The authors discussed the genetics of this condition, and its relationship to similar conditions in fowls.—R.M.

CONNER, M. H. & SHAFFNER, C. S. (1953). **An arched-neck character in chickens.**—*J. Hered.* **44,** 223-224. **3367**

The authors observed a condition of permanent arching of the neck in a flock of New Hampshire fowls. Both males and females were affected. Symptoms were first seen when the fowls were 25 days old; they bore a superficial resemblance to those of Newcastle disease, except that respiratory symptoms were absent. Affected birds lived for from a few weeks to ten months. Since mating was impossible, artificial insemination was used in breeding experiments. They concluded that the condition was inherited by the action of several autosomal genes.—R.M.

SIMIĆ, V. N. (1952). **[Intersexuality in a goat.]** —*Acta Vet., Belgrade.* **2,** No. 2. pp. 147-159. [In Serbian. Abst. from English summary.] **3368**

S. described the anatomy of the uro-genital system of an intersex goat. Testicles and uterus were present in the abdomen: there were only rudimentary ovaries.—R.M.

HENDERSON, M. (1954). **Foetal regression in rabbits, experimental studies of histolysis and phagocytosis.**—*Proc. R. Soc.* Ser. B. **142,** 88-112. [Author's summary modified.] **3369**

H. described in detail the processes resulting in the removal of the embryos and the regeneration of the uterine tissues after foetal death in rabbits. The embryos were killed either by administration of stilboestrol to the dam, or by direct mechanical damage, 11 or 16 days or 19–20 days after coitus. Specimens at known intervals thereafter, were preserved or sectioned. Regression of the embryos *in situ* was followed until they had disappeared and the uterine tissues had been restored to normal. Sometimes this process of gradual removal was curtailed by abortion. The various tissues involved became necrotic in a definite sequence which was affected by the way in which the embryos were killed. During regression the uterine epithelium and submucosa became eroded antimesometrially and the decidua fragmented mesometrially, when all the embryos were dead. When any embryos survived, the erosion of the antimesometrial uterine wall in the vicinity of the dead embryos did not occur and the fragmentation of the decidua was postponed until parturition. Marked leucocytosis of the uterine tissues and lumen occurred when all the embryos were dead, but not when any embryos survived. The majority of these leucocytes appeared to be discharged gradually with the tissue debris through the vagina, but it was not possible to determine by examination alone whether any such leucocytes returned from the uterine lumen into the maternal system. Following the injection of marker substances into the uterine lumen during resorption, leucocytes laden with marker were found in all the uterine tissues and congregated in lymphoid tissue situated antimesometrially within the serous coat of the uterus.

H. discussed the possible significance of the retreat of laden leucocytes from a resorbing conceptus into the maternal system in relation to the problem of the sensitization of the dam to incompatible foetal antigens.

RENDEL, J. M. (1954). **Inheritance of birthcoat in a flock of improved Welsh Mountain sheep.** —*Aust. J. agric. Res.* **5,** 297-304. [Author's summary modified.] **3370**

R. discussed previous work on the inheritance of birthcoats in sheep and criticized the suggestion that the variation normally found is monogenic. He supported this criticism by an account of Welsh Mountain sheep. He suggested that the relationship between birthcoat

type and adult fleece type can be interpreted by reference to the ratio of primary to secondary follicles in the adult skin, which in itself has no relevance to birthcoat type, since the ratio in all breeds of sheep is very similar at birth.

See also absts. **3081** (bovine abortion caused by *L. pomona*); **3093** (effect of antibiotics in bull semen on *V. fetus*).

ZOOTECHNY

BIANCA, W. (1952). Die Akklimatisation von Haustieren. **[Acclimatization of domestic animals.]**—*Landw. Jb. Schweiz.* **66,** 279-305. [French summary.] **3371**

B. discussed the effects of individual climatic factors (air temp., humidity, sunshine, air movements, rate of cooling of the body, air pressure) on animals, the effect of extreme climatic environments on reproduction and meat and milk production, and methods of selecting and testing the acclimatization ability of a given breed of animal in the laboratory.—R.M.

EWER, T. K. (1953). **Dairy cows and high temperatures.**—*Aust. J. Dairy Tech.* **8,** 125-129. **3372**

The milk yields of cows in Northern Australia are lower than those of cows in the South, owing to the difference in environmental temperatures. E. reviewed experimental work on the effect of a hot climate on cattle, and described measures that could be taken to improve the milk yields of cows in Northern Australia. These included the abundant supply of cool drinking water, shade, good quality grazing at night, and the selection of heat tolerant breeds of cattle.—R.M.

DALY, R. A. & CARTER, H. B. (1954). **A method of fractionating raw fleece samples and some errors encountered in its use in experimental studies of fleece growth.**—*Aust. J. agric. Res.* **5,** 327-344. [Authors' summary modified.] **3373**

The authors described a routine quantitative method of separating raw fleece samples into five fractions. Moisture content at a known temperature and relative humidity is determined as the loss of weight on drying at 105°C., wax is Soxhlet-extracted with carbon tetrachloride, suint is extracted by subsequent washings with cold distilled water, dirt is removed by washing and hand-picking, and clean wool fibre remains after these fractions have been removed. Some errors detected in the extensive use of this method to provide simple criteria in a variety of field and laboratory studies of fleece growth were examined. Recovery of original sample weight after fractionation was satisfactory and there was good agreement between the results for duplicate samples. There was a tendency for incomplete separation of suint and for ethyl-alcohol-soluble material, of the order of 1% by weight, to remain on the clean wool fibre.

FEDYUSHIN, V. P. (1952). **[The work of the Central Veterinary Station of the Shebekinsk District.]**—*Veterinariya, Moscow.* **29,** No. 8. pp. 18-20. [In Russian.] **3374**

A description of how the station is run and the measures taken to control disease and produce healthy animlas. Education of the farm workers in the rudiments of veterinary science with strict observance of hygiene and prompt attention to medical and managerial rules are the reasons for the excellent results obtained.

—F. A. ABBEY.

ANON. (1953). **The improvement of cattle in British colonial territories in Africa.**—*Publ. Colon. Advis. Counc. Agric. anim. Hlth. Forestry.* No. 3. pp. 144. London: H.M.S.O. 10s. 6d. **3375**

The report begins with an introduction stressing the various social and economic questions, as well as those of nutrition and disease, which must form the background to any discussion of livestock improvement. The remainder is a description of the general methods in British colonial territories, of the methods of improvement appropriate to tropical Africa as a whole, and of the problems of individual territories.

There are plates illustrating indigenous breeds of cattle and appendixes of detailed information on climates, regional vegetation, human and cattle populations, and the performance of various breeds on government stock farms and experimental stations.—A.S.

PACHECO JORDÃO, L., XAVIER DE CAMARGO, M. & FURTADO GOUVEIA, P. (1952). Eficiéncia, na reprodução, do plantel Anglo-Árabe da Goudelaria Paulista. **[Breeding efficiency of Anglo-Arabian horses in Brazil.]**—*Bol. Indust. anim.* **13,** 63-77. [Abst. from English summary and conclusions.] **3376**

A summary of observations on the breeding efficiency of 381 mares of Anglo-Arab stock, observed over the period 1937-49, and served by stallions of Anglo-Arab, English, Arab, Holstein and Trakehnen breeds.—A.S.

PACHECO JORDÃO, L. & CALDAS FILHO, C. F. (1952). Aspectos da eficiência reprodutiva dos caprinos, em São Paulo. **[Breeding efficiency of goats in Brazil.]**—*Bol. Indust. anim.* **13,** 79-97. [English summary and conclusions.] **3377**

The authors gave an account of the various breeds of goat encountered in Brazil, with special reference to those of the region of São Paulo. They presented data recorded over the period 1936-39 on the breeding season, gestation period and number of offspring of 1,176 goats of various breeds kept by the Department of Animal Production of that city.—A.S.

BIRD, A. R. (1953). **A study of the factors responsible for the fluctuations of sheep numbers in the Charleville district of South-western Queensland, 1939-1949.**—*Univ. Qd. Pap. Fac. Agric.* **1,** 45-85. **3378**

From a very comprehensive study of 50 downs, mulga and river properties, B. concluded that drought was the major factor affecting production, between 1939 and 1949, but the influences of size of property, animal pests and some minor factors were also examined. An analysis was given of managerial policies adopted to overcome adverse factors, and it was suggested that improved nutrition, by minimizing the effects of drought, offers the main hope of increased production.—R. I. SOMMERVILLE.

TECHNIQUE AND APPARATUS

BURGDORFER, W. & PICKENS, E. G. (1954). **A technique employing embryonated chicken eggs for the infection of argasid ticks with *Coxiella burnetii, Bacterium tularense, Leptospira icterohaemorrhagiae,* and Western equine encephalitis virus.**—*J. infect. Dis.* **94.** 84-89. [Authors' summary modified.] **3379**

The authors described a technique for feeding *Ornithodoros moubata, O. turicata, O. parkeri* and *O. hermsi* on the air-sac membrane of chick embryos. Several attempts to feed *Argas reflexus* by the same method failed.

The technique is also useful for testing argasid ticks for their ability to ingest, to preserve, or to transmit disease agents that can be cultivated in eggs and also for research studies regarding the life cycle and behaviour of such agents in ticks.

Infections with *Rickettsia burneti, Brucella tularensis, L. icterohaemorrhagiae* and Western equine encephalitis virus were set up in *O. moubata* and *O. turicata* by feeding them on infected eggs. In transmission studies, normal eggs were used to detect infections by relapsing fever spirochaetes in *O. turicata* and *O. parkeri.*

CLAYDEN, E. C. (1952). **A discussion on the preparation of bone sections by the paraffin wax method with special reference to the control of decalcification.**—*J. med. Lab. Tech.* **10,** 103-123. **3380**

C. discussed several chemical and electrochemical methods for decalcifying bone for section cutting. He recommended a technique employing 10% nitric acid as being rapid and producing good results.—S. E. FOX.

SCHWARTE, L. H., MATHEWS, J. & PARCHEN, F. R., JR. (1952). **High-speed shell freezing for lyophilization.** — *Cornell Vet.* **42,** 196-199. **3381**

A detailed account of how the authors adapted an electric drill to hold freeze-drying tubes. The contents of each tube are spun at 2,500 or more r.p.m. and the resulting film is frozen by raising a beaker of ice and alcohol until the spinning tube is immersed in it. The tubes of frozen material are collected into another lot of ice and alcohol, then dried together in a vacuum, and the tubes sealed. The method is comparatively inexpensive and the results satisfactory.—L. M. MARKSON.

DENTON, A. E., GERSHOFF, S. N. & ELVEHJEM, C. A. (1953). **A new method for cannulating the portal veins of dogs.**—*J. biol. Chem.* **204,** 731-735. **3382**

A plastic tube is sutured into the portal vein and the free end led subcutaneously to the shoulder where it will function for 6–8 weeks. —J. E. SMITH.

SEREN, E., VACIRCA, G. & BABINI, A. (1951). Su di un metodo pratico per la registrazione grafica della motilità del rumino nei bovini. **[Method for registering the motility of the rumen in cattle.]**—*Atti Soc. ital. Sci. vet.* **5,** 158-164. [English and French summaries.] **3383**

Pressure resulting from the movements of the rumen, as exerted on the triangle between the last rib and the external angle of the ilium, was recorded in an elastic compressible chamber strapped in position on the flank and connected to a manometer.—I. MARTINI.

DICK, A. T. & MULES, M. W. (1954). **Equipment for the clean collection of twenty-four-**

hour samples of urine and faeces from sheep. —*Aust. J. agric. Res.* **5,** 345-347. [Authors' summary modified.] **3384**

The authors discussed some of the difficulties of collecting sufficiently clean 24-hour urine and faeces samples from sheep for studies on trace element balance. They described equipment for use with wethers for this purpose.

WHITTLESTONE, W. G. & PHILLIPS, D. S. M. (1953). **Automatic apparatus for drawing the milk-ejection curves of dairy cows under controlled milking conditions.**—*J. Dairy Res.* **20,** 319-326. [Authors' summary modified.] **3385**

A description of an improved milk-flow recording apparatus which was completely controlled by the milking operations in the milking shed, and which automatically indicated the end of milking (emptying of the udder) in terms of a predetermined rate of milk flow. It was possible to record milk-ejection curves without changing the milking routine and without requiring an additional operator in the milking shed.

See also absts. **3025** (haemolytic test in TB.); **3029-3030** (cultivation of tubercle bacilli); **3039** (differentiation of tubercle bacilli in milk with the fluorescence microscope); **3332** (chromatography in purification of petrol ether extracts of carotene).

MISCELLANEOUS

ANON. (1954). **Index of agricultural research in progress during 1953-4.** pp. 118. London: H.M. Stat. Off. 2nd Edit. 5s. **3386**

This pamphlet is a guide to current agricultural research in Great Britain, and to other research which has a bearing on agricultural problems.

An alphabetical subject index with such headings as " animal physiology ", " biochemistry ", " animal breeding and genetics ", and " soils " refers the reader to the institutes concerned with particular aspects of research, and there are two supplementary indexes from which it is easy to ascertain where work is being done on a particular animal or crop.—A.S.

CASARETT, G. W. (1953). **Comparison of pathologic effects of radiation in weanling and adult rats.**—*Arch. Path.* **55,** 393-402. **3387**

Newly weaned rats were more susceptible to X-rays at a dosage of 800 r than adult rats. Greater histopathological damage in many organs of these young rats was attributed to a proportionately greater internal dose, and to greater radio-sensitivity of the internal organs than those of adult rats.—E. J. L. SOULSBY.

TRUM, B. F., RUST, J. H. & WILDING, J. L. (1952). **Clinical observations upon the response of the burro to large doses of external whole body gamma irradiation.** — *Auburn Vet.* **8,** 131-136. **3388**

Donkeys were given total doses of whole body gamma irradiation varying from 225 R, a non-fatal dose, to 1,230 R, a 100% fatal dose. The principal signs and symptoms were a sharp fall in white and red blood cell counts, a lengthening of clotting time, neuromotor disturbances and skin lesions.—R. MARSHALL.

REPORTS

NEW ZEALAND. (1953). **Animal Research Division Department of Agriculture. Annual Report for 1952-53.** [FILMER, J. F.] pp. 31. Wellington: R. E. Owen, Govt. Printer. **3389**

The diagnostic service dealt with 17,401 specimens from 5,815 cases. HYPERKERATOSIS in cattle, JOHNE'S DISEASE in sheep and SCRAPIE were diagnosed for the first time.

In the research field a large amount of work has been undertaken, such as sheep breeding experiments covering flushing studies of ewes, fecundity of ewes by the injection of hormones, improvement by crossing and other methods.

Disease research included the study of FACIAL ECZEMA, infectious genital disease and " SCABBY MOUTH " in sheep. In cattle the work included breeding and nutritional problems, investigation on various diseases and the study of milking machines and milking methods.

Experiments were carried out on milk production in the sow, and on the use of antibiotics or detergents with separated milk for the fattening of pigs. There was no significant increase in efficiency of food conversion from feeding penicillin, aureomycin or lissapol N. [a detergent] with separated milk.

Bacteriological investigations were carried out on glands collected from normal animals at meat works. The report also covers parasitology, the study of trace elements and ends with a list of 58 publications.—D. S. RABAGLIATI.

UNION OF SOUTH AFRICA (1952). **Safeguarding the Union's livestock industry.** [ALEXANDER, R. A.]—*Fmg. S. Afr.* **27,** 548-563. **3390**

The report is divided into two sections, on research and field work respectively, and covers the period from July 1951 to June 1952. In the

first section there is a list of biological products and pharmaceuticals issued by government laboratories, and a description of research on protozoan diseases (nagana, anaplasmosis, dourine, redwater); virus diseases (bluetongue, fowl pox, "lumpy skin" disease, heartwater, African horsesickness, infectious epididymitis and vaginitis of cattle, Rift Valley fever, Newcastle disease, African swine fever); bacterial diseases (anthrax, blackleg, enterotoxaemia, "lamsiekte", contagious abortion, paratyphoid, fowl typhoid, TB.); entomology and helminthology; chemistry and biochemistry; nutrition; physiology and pharmacology; toxicology; surgery; anatomy; pathology; medicine; hygiene; zootechny.

The section on field work indicates that the country is once more free from F. & M. disease. More than 18,000 cattle were tested with tuberculin under the official scheme (129 reactors), and 14,800 were tested under the interim control scheme (571 reactors). There were four outbreaks of rabies. Use of the Flury strain avianized rabies vaccine was adopted as a means of reducing the usual six months' quarantine on dogs imported from rabies-infected countries. There are also notes on the incidence of the following scheduled diseases:—East Coast fever, Tzaneen disease [believed to be a fatal *Theileria mutans* infection, in cattle subjected to unfavourable influences such as a long journey], "lumpy skin" disease, anthrax, sheep scab, mange, Johne's disease, dourine, epizootic lymphangitis, swine fever, fowl cholera, Newcastle disease, *Salmonella* infections of fowls, Rift Valley fever; and the following non-scheduled diseases:—enterotoxaemia, heartwater, piroplasmosis, African horsesickness, bluetongue, and other diseases. There is a list of livestock and products of animal origin imported and exported.—D. S. RABAGLIATI.

NIGERIA. (1953). **Annual report of the Veterinary Department for the year 1951-52.** [MARSHALL, R. S.] pp. 24. Nigeria: Govt. Printer. 9d. **3391**

The establishment for the senior service of the Veterinary Department is 83, of whom 43 should be veterinarians, the junior staff has an establishment of 326. Many of the posts were, however, vacant. In the year under review there were 35 veterinarians two of whom had Danish diplomas.

BOVINE CONTAGIOUS PLEURO-PNEUMONIA gave the greatest concern as its incidence remained extremely high. Diagnosis by means of the complement fixation test is being studied. RINDERPEST was kept in check. TRYPANOSOMIASIS was still a major problem; antrycide methyl sulphate has been much in use, but the supply fell far short of the demand.

The Veterinary Laboratory carried out excellent work preparing caprinized RINDERPEST virus, lapinized virus, vaccine for FOWL POX, NEWCASTLE DISEASE and others—a total of 4,026,908 doses of vaccines being issued.

The Veterinary School trains African veterinary students for field work and 72 students were under instruction. The School had a successful year and the students participated in the control of the four important Nigerian cattle diseases. The report ends with a series of statistical tables.—D. S. RABAGLIATI.

GOLD COAST. (1953). **Report of the Department of Animal Health for the year 1951-52.** pp. 8. Accra: Govt. Printing Dept. 2s. **3392**

In the Northern Territories the main problems were tick and fly-borne disease, overstocking, and disease introduced from neighbouring areas (*e.g.* a severe outbreak of RINDERPEST followed the entry of trade cattle from French territory). On the Accra plains water shortage was the limiting factor.

ANTHRAX, BOVINE CONTAGIOUS PLEURO-PNEUMONIA, and TRYPANOSOMIASIS occurred widely in cattle. *T. vivax* infection was best treated with naganol, but antrycide proved superior against *T. brucei* and *T. congolense*. In a controlled experiment involving 125 cattle "antrycide prosalt" (a mixture of antrycide methyl sulphate and antrycide chloride) was more effective than dimidium bromide or naganol for the protection of cattle on trek. One case of JOHNE'S DISEASE (hitherto almost unknown in W. Africa) was diagnosed.

EPIZOOTIC LYMPHANGITIS, HEARTWATER and RABIES occurred in horses, sheep and dogs respectively, while NEWCASTLE DISEASE, FOWL CHOLERA, FOWL TYPHOID and FOWL POX were the major poultry diseases.—J. E. SMITH.

JAMAICA. (1950). **Annual Report of the Department of Agriculture for the year ended 31st March, 1948.** pp. 23. Items of veterinary interest pp. 14-19. Kingston: Govt. Printer. **3393**

The vacancies in professional staff were not filled during the year.

There were no outbreaks of exotic contagious disease.

Of 1,022 cattle submitted to the tuberculin test only one gave a positive reaction. Seven hundred and sixty-three cattle were vaccinated against ANTHRAX and 1,159 against BLACKLEG. Calfhood vaccination with *Brucella abortus*

Strain 19 was carried on; of 1,051 agglutination tests carried out, 26 yielded positive and 54 suspicious reactions. MASTITIS is increasingly prevalent among high-production dairy cows. A few cases of TETANUS were reported.

ANAPLASMOSIS and PIROPLASMOSIS caused losses.

Only 378 vaccinations against SWINE FEVER were done owing to lack of funds to purchase crystal violet vaccine.

HELMINTH INFESTATION was less severe, owing to improved hygiene and the regular use of anthelmintics.

JOHNE'S DISEASE of cattle, ENTEROTOXAEMIA of goats, HABRONEMIASIS of equine animals, FOWL CHOLERA and INFECTIOUS OPHTHALMIA in calves are said to have been identified in Jamaica for the first time. FOWL CHOLERA, caused losses, and outbreaks of FOWL CORYZA, FOWL POX and ROUP were reported. Vaccinations against FOWL CHOLERA, 2,690 and FOWL POX, 20,795 were carried out.

Despite shortage of professional staff there were 1,603 clinical calls, visits and consultations.

There were 48 livestock improvement centres in which there were 75 bulls, 61 bucks, 9 boars and 4 donkey stallions. A " subsidized sires " scheme provides sires in areas not served by the livestock improvement centres, 27 bulls, 11 bucks, 6 boars and one ram being provided. Forty bulls were loaned to agricultural societies who are allowed to charge a fee for maintenance.

Details were given of the artificial insemination scheme which is being extended in a dairy farming area. Four Jersey bulls were used and 647 cows were inseminated.

The new veterinary investigation laboratory was occupied and diagnostic work carried out included the examination of 3,697 specimens.

A survey of the blood chemistry of cattle on different types of soil was in progress.

—J. A. GRIFFITHS.

UNITED NATIONS. (1953). **Report on the activities of FAO under the Expanded Technical Assistance Program for 1952/1953. Conference of FAO Seventh Session (23 November 1953).** pp. 88. Rome: Food and Agriculture Organization of the United Nations. **3394**

A report on the activities of the F.A.O. under the expanded technical assistance programme, consisting for the most part of individual progress reports from countries which received aid. There is a list of fellowships awarded to individuals or groups of individuals after training fitting them to take charge of various F.A.O. projects in their countries, and sections are devoted to regional plans and to an account of the establishment of training centres. In conclusion there are appendixes listing the countries to which aid was given, the services of experts provided under the programme, and fellowships awarded, together with a statement of funds and estimates for the year.—A.S.

HOLLAND. (1953). Zesde jaarverslag (1 Mei 1951 t/m 30 April 1952) de Provinciale Gezondheidsdienst voor Dieren in Zuid Holland. **[Sixth annual report of the Provincial Animal Health Service in South Holland, 1951-52.]** pp. 53. Gouda: Gezondheidsdienst voor Dieren. **3395**

Tuberculin test on 264,930 cattle in 13,032 herds yielded 34·7% reactors as compared with 39% in 1950-51; 4,871 of the herds (71,006 cattle) were reaction free. For a province with a high proportion of reactors these results were considered to be very satisfactory.

Infected farms that did not isolate reactors were compared with those that did. In the former case 36·9% new reactors were seen against 17·09% in the latter. On the " reaction-free " islands of Rozenburg, Voorne-Putten and Ijsselmonde the percentage of reactors ranged from 0·7% to 3·3%. A great part of these reactors had been purchased from elsewhere.

Of 7,593 sputum samples, 347 milk samples and 7 samples of uterine discharge examined microscopically for TB., 179, 16 and none, respectively, were positive. A great part of these samples was cultured on the medium described by Stonebrink [*V.B.* **23,** 1800]. Of 4,319 sputum samples thus cultured 246 were positive, of 315 milk samples 25, and of 5 samples of uterine discharge 2 were positive. Growth was visible on this medium after an incubation period of 10–14 days.

The report also dealt briefly with the control of *Br. abortus* infection, warble flies, sterility, and F. & M. disease vaccination.

—C. A. VAN DORSSEN.

U.S.A. (1954). **Report of Committee on Infectious Diseases of cattle. Mastitis, shipping fever, leptospirosis, Johne's disease, mucosal disease.**—*Proc. 57th Ann. Meet. U.S. live Stk sanit. Ass.* 1953. pp. 183-191. **3396**

The committee on infectious diseases of cattle of the U.S. Livestock Sanitary Association estimated the annual loss due to MASTITIS at $250 million, and recommended that more attention be paid to its control and eradication. They discussed the control of JOHNE'S DISEASE, with reference to hygienic measures and the

johnin test, and the role of *Pasteurella septica* in the aetiology of SHIPPING (or TRANSIT) FEVER and the treatment of this condition. The existence of LEPTOSPIROSIS in cattle has been confirmed by clinical and serological examination in 40 out of the 48 States, and by isolation of leptospira in at least 10 States. *L. pomona* was the commonest species isolated; *L. canicola* and *L. hebdomadis* were also isolated. There were occasional serum titres against *L. autumnalis*, *L. icterohaemorrhagiae* and *L. grippo-typhosa*.

They gave a description of the condition in cattle to which Ramsey & Chivers [see abst. 3272] gave the name MUCOSAL DISEASE.—R.M.

BOOK REVIEWS

CAULLERY, M., LE CALVEZ, J., CHATTON, E., PAVILLARD, J., DEFLANDRE, G., POISSON, G., GRASSÉ, P.-P., TRÉGOUBOFF, G. & HOLLANDE, A. (1953). Traité de zoologie, anatomie, systématique, biologie. Tome. I. Protozoaires: rhizopodes, actinopodes, sporozoaires, cnidosporidies. Fascicule II. **[Treatise of zoology, anatomy, systematics and biology. Vol. I. Protozoa. Part II.]** pp. 1160. Paris: Masson et Cie. Fr. 9935. **3397**

This volume, which is part of a very large treatise to be devoted to a systematic treatment of the whole Animal Kingdom, contains a wealth of information which fits it for a place among the few reference books on the protozoa.

Students of pathogenic protozoa will be particularly interested in the sections on the Rhizopoda and Sporozoa. The accounts of the biology of these groups are very full and pathogenicity, chemotherapy and vectors and their control are described.

There are numerous references and the volume is well illustrated with drawings and photographs.—L. P. JOYNER.

ROUSSELOT, R. [Correspondant du Muséum d'Histoire Naturelle.] (1953). Notes de parasitologie tropicale. Tome I. Parasites du sang des animaux. Tome II. Ixodes. **[Notes on tropical parasitology. Vol. I. Parasites of the blood of animals. Vol. II. Ixodidae.]** pp. 152 & pp. 134. Paris: Vigot Frères. Fr. 2050. **3398**

These two volumes are written in the form of research notes. The author has drawn from a very wide experience and the books are of particular value because of the practical details that are given. The important characteristics of the various parasites are described and clinical descriptions of the infections are given. In the case of the volume on the Ixodidae several useful identification keys are provided.

—L. P. JOYNER.

ANON. (1953). **U.S.A. Insects. Yearbook of Agriculture—United States Department of Agriculture. (1952).** xviii + 780. Washington: U.S. Government Printing Offices. $2.50. **3399**

Over a hundred specialists, many of them veterinarians, have contributed to this symposium on arthropods which are injurious to man, animals and plants. The chapters are very short and the accent is mostly on methods of control. The newer insecticides are discussed in detail and their limitations indicated. For the most part the book is written for the practical agriculturist. There are 72 colour-plates of life-cycles of the common harmful insects of the U.S.A., but with the exception of three they are of house or agricultural pests.

—JAS. G. O'SULLIVAN.

CONISBEE, L. R. (1953). **A list of the names proposed for genera and subgenera of recent mammals from the publication of T. S. Palmer's 'Index Generum Mammalium' 1904 to the end of 1951.** pp. 109. London: British Museum (Natural History). 20s. **3400**

This work is intended as a supplement to bring Palmer's classic work more nearly up to date, and its presentation follows that of the original work.

The first part of the book consists of an alphabetical list of proposed generic names, each assigned to its order and family and followed by a brief entry comprising a bibliographical reference, the type species, the type locality, and where possible an etymological explanation of the name. This alphabetical list is followed by a complementary list of the genera and subgenera arranged according to orders and families.—A.S.

—. (1953). **Mammalian germ cells. A Ciba Foundation Symposium.** [Edited by: WOLSTENHOLME, G. E. W.] pp. xvi + 302. London: J. & A. Churchill, Ltd. 30s. **3401**

This book contains 13 papers on spermatozoa and 11 on ova. Nine of the papers relate directly to work on bull semen with reference to artificial insemination.

There are two papers on early foetal death, in the cow and the opossum. A single paper refers to work on various species of farm animal, and there are six on experinmental work using rabbit material; this includes transplantation, fertilization *in vitro*, and polar body formation.

The papers are lucid, and many are of the

first importance. The discussion reports appear to have been very little edited and gain thereby. There are 14 pages of very good photomicrographs, and in general it is difficult to speak too highly of the book.—F. L. M. DAWSON.

MACKENZIE, P. Z. [Senior Veterinary Inspector, Sudan Veterinary Service.] & SIMPSON, R. M. [Research Officer, Department of Veterinary Services, Kenya Colony.] (1953). **The African veterinary handbook.** pp. xi + 260. Nairobi & London: Sir Isaac Pitman & Sons, Ltd. [Crown 8vo.] 15s. **3402**

This book is intended for the farmer and stockowner who in Africa often has difficulty in obtaining qualified veterinary assistance. The author discusses a wide range of diseases encountered in Africa, under the headings: symptoms, cause, incubation period, pathogenicity, *post-mortem* appearance, diagnostic aids, treatment and prophylaxis.

There is a section dealing with parasites and one on First Aid. A varied list of miscellaneous items from artificial insemination and the branding of stock to vitamin deficiencies is considered.

There is a glossary of technical terms and a good index.

The book is recommended for the practical farmer in Africa and should prove of value to veterinary students under tropical conditions.

—S. BRIAN KENDALL.

BOOKS RECEIVED

[Notice of recently received books in this list does not preclude review.]

BASSERMANN, F. J. (1953). Probleme der Morphologie. Cytochemie und Wuchsform des Tuberkuloseerregers. **[Morphology and cytochemistry of *Mycobacterium tuberculosis* in young cultures.]** pp. 98. Stuttgart: Georg Thieme. DM 7.80.

FISHER, R. B. (1954). **Protein metabolism.** pp. ix + 198. London: Methuen & Co., Ltd. 11s. 6d.

GRAY, E. A. (1954). **Microbiology : an introduction.** pp. xii + 175. London: Crosby Lockwood & Son, Ltd. 10s. 6d.

HAM, A. W. (1953). **Histology.** pp. xix + 866. London: J. B. Lippincott Co. 2nd Edit. 80s.

HOUSTON, W. V., NOYES, W. A., JR., STERN, C., GREGG, A. & CAMP, W. H. (1952). **The scientists look at our world.** pp. 147. Geoffrey Cumberlege, Oxford University Press. $3.00.

KAUFMANN, H. P. (1953). Arzneimittel-Synthese. **[Drug synthesis.]** pp. vii + 834. Berlin: Springer-Verlag. DM 87.

KOCH, F. C. & HANKE, M. E. (1953). **Practical methods in biochemistry.** pp. ix + 537. London: Baillière, Tindall & Cox, Ltd. 6th Edit. 38s. 6d.

KOCH, W. (1954). Lehrbuch der Allgemeinen Tierzucht. **[Textbook on animal breeding and husbandry.]** pp. vii + 312. Stuttgart: Ferdinand Enke. DM 26.

MALLIS, A. (1954). **Handbook of pest control. The behaviour, life history, and control of household pests.** pp. 1068. New York: Mac Nair-Dorland Co. 2nd Edit. $9.75.

MANDE, R. (1954). Manuel pratique de vaccination par le B.C.G. **[B.C.G. vaccination manual.]** pp. iv + 200. Paris: Centre International de l'Enfance. Fr. 950.

NONIDEZ, J. F. & WINDLE, W. F. (1953). **Textbook of histology.** pp. xv + 528. London: McGraw-Hill Publishing Co., Ltd. 2nd Edit. 76s.

OGINSKY, E. L. & UMBREIT, W. W. (1954). **An introduction to bacterial physiology.** pp. xi + 404. London: Bailey Bros. & Swinfen, Ltd. 51s.

SEGAL, M. S. & DULFANO, M. J. (1953). **Chronic pulmonary emphysema. Physiopathology and treatment.** pp. x + 180. New York: Grune & Stratton, Inc. Modern Medical Monographs 8. $5.50.

WHITEHEAD, J. K. (1953). **The ancient white cattle of Britain and their descendants.** pp. 174. London: Faber & Faber, Ltd. 63s.

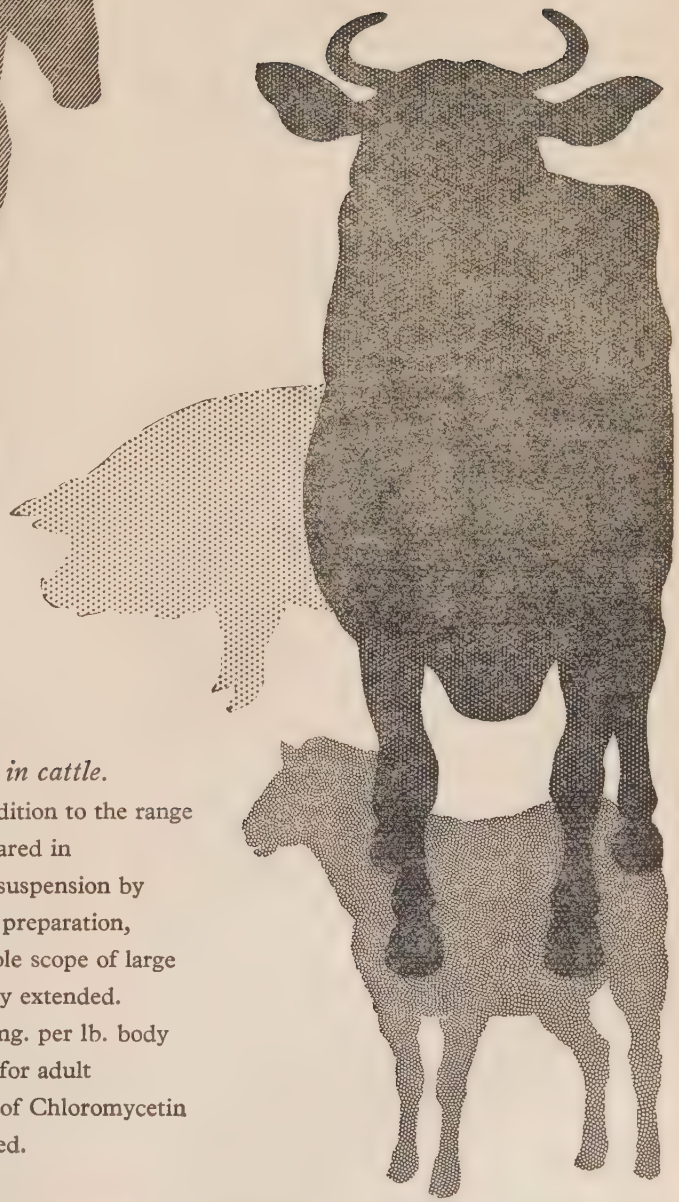
WHITNEY, L. F. (1954). **The complete book of cat care.** pp. 264. London: Victor Gollancz, Ltd. 18s.

—. (1954). **Advances in cancer research. Vol. II.** [Edited by: GREENSTEIN, J. P. & HADDOW, A.] pp. xi + 530. New York: Academic Press Inc. $11.

—. (1953). **Advances in virus research. Vol. I.** [Edited by: SMITH, K. M. & LAUFFER, M. A.] pp. vii + 362. New York: Academic Press Inc. $8.

ANON. (1954). **British Postgraduate Medical Federation, University of London. Lectures on the scientific basis of medicine. Vol. II 1952-53.** pp. xi + 380. London: University of London; The Athlone Press. 35s.

Printed in Great Britain by CHARLES BURRELL & SON, Chertsey



for simplified therapy...

. . . of such conditions as virus pneumonia in pigs or pasteurellosis in cattle.

Chloromycetin® Intramuscular, a notable addition to the range of Chloromycetin products, is specially prepared in microcrystalline form for use as an aqueous suspension by deep intramuscular injection. With this new preparation, not only is treatment simplified, but the whole scope of large animal Chloromycetin therapy is considerably extended. Dosage may be calculated on the basis of 5 mg. per lb. body weight daily, e.g. 5 g. for a 1,000 lb. animal, for adult farm animals appear to require a lower dose of Chloromycetin for clinical response than was at first estimated.

Chloromycetin INTRAMUSCULAR

® *Registered Trade Mark*

Rubber-capped vials containing 2 g. Chloromycetin

MEDICAMENTA VERA

Parke, Davis & Company, Limited *(Inc. U.S.A.)* Hounslow, Middlesex. Tel : Hounslow 2361

543

DISEASES CAUSED BY BACTERIA AND FUNGI, **3403-3468.**

Pustular dermatitis of the mammary gland in cattle, **3403;** Production of opacity in egg-yolk broth by staphylococci, **3404;** Leucocyte count of herd milk and mastitis, **3405;** Mastitis and stripping after machine milking, **3406;** Effect of oxytocic principle on mastitis in goats, **3407;** The importance of exposure and of age in *Str. agalactiae* infection, **3408;** Treatment of mastitis with chloramphenicol, **3409;** Morphological changes in streptococci after treatment of mastitis with antibiotics, **3410;** Streptococcal metritis in mink, **3411;** Disease in pigs associated with *Chromobacterium violaceum,* **3412;** Control of bovine TB. in West Germany, **3413;** TB. with no visible lesions, **3414;** The filtrable form of *M. tuberculosis,* **3415;** Immature tubercle bacilli in the bacteraemia of experimental TB., **3416;** Histamine content of the blood in tuberculous fowls, **3417;** Infection of human beings in Switzerland by bovine type tubercle bacilli, **3418;** The *M. tuberculosis* growth factor, **3419;** Isolation of Johne's bacillus from the udder, **3420;** Experimental Johne's disease in cattle, **3421 & 3422;** Satellitism in cultures of *M. johnei,* **3423;** Carriers of swine erysipelas, **3424;** *E. rhusiopathiae* strains from the tonsils of pigs, **3425;** *E. rhusiopathiae* in a chipmunk, **3426;** Agglutinating properties of *E. rhusiopathiae,* **3427;** The relation of silage to listeriasis in sheep, **3428;** *E. monocytogenes* in animals in Norway, **3429;** Lesions in a case of fowl listeriasis, **3430;** Mastitis caused by *Past. septica,* **3431;** Infectious keratitis in cattle, associated with *Haemophilus bovis,* **3432;** Differentiation and pathogenecity of *H. influenzae-suis,* **3433;** Protective antigen of *H. pertussis,* **3434;** Agents in faeces which inhibit *Proteus* and *Salmonella,* **3435;** *S. taksony* from a chicken, **3436;** Salmonella from the faeces of sea birds, **3437;** Treatment of *Salmonella* in pigeons, **3438;** Abortion due to *S. abortus-ovis* in human beings, **3439;** Transduction of flagellar characters in salmonella, **3440;** Brucellosis of cattle, **3441;** Classification of 130 strains of brucella from cattle, **3442;** Paper chromatography in the diagnosis of brucellosis, **3443;** The opsonin test in brucellosis in sheep, **3444;** *Br. melitensis* infection in hares, **3445;** The bone marrow in brucellosis, **3446;** Abortion in pigs associated with leptospirosis, **3447;** Active immunization of lambs against pulpy kidney disease, **3448;** Infectious necrotic typhlitis in rabbits, **3449;** Tetanus antitoxin and glucose in the blood of cows, **3450;** Failure to produce illness in volunteers fed *B. cereus* and *Cl. welchii,* **3451;** Mechanism of the formation of lower fatty acids by clostridia, **3452;** Treatment of bovine vibriosis, **3453;** Foot rot elimination, **3454;** TB. and *Brucella* infection in Yugoslavia, **3455;** Bacteraemia : experimental and clinical aspects, **3456;** Farmer's lung, **3457;** Pathogenesis of moniliasis in turkey poults, **3458;** Routine identification of *Candida,* **3459;** Chromoblastomycosis in the horse, **3460;** Streptothricosis in dogs, **3461;** The production of acid phosphatase by *Actinomyces,* **3462;** Freeze-dried bovine contagious pleuro-pneumonia culture-vaccine, **3463;** Use of penicillin in vaccine cultures of bovine contagious pleuro-pneumonia, **3464;** Effect of revaccination on the immunity to bovine contagious pleuro-pneumonia, **3465;** Micro-organisms of the pleuro-pneumonia group, **3466;** Lesions in chick embryos produced by pleuropneumonia-like organisms from chronic respiratory disease of fowls and infectious sinusitis of turkeys, **3467;** Anaemia in mice caused by *Eperythrozoon coccoides,* **3468.**

DISEASES CAUSED BY PROTOZOAN PARASITES, **3469-3482.**

Amoebic infections in dogs, **3469;** Transmissibility of *T. evansi* in chicks, **3470;** *Leishmania* infection in dogs, **3471;** *Trichomonas* infection in cattle in Italy, **3472;** Immunological studies on *Trichomonas,* **3473;** *Isospora* infections in man, **3474;** *E. arloingi* in goats in Sardinia, **3475;** Coccidiosis in sheep and goats in Sardinia, **3476;** Sulphaquinoxaline and sulphamethazine in interrupted schedules of treatment of *E. tenella,* **3477;** The effect of cortisone on *Pl. berghei* infections, **3478;** Light and electron microscopic studies on the Sabin-Feldman test for toxoplasmosis, **3479;** Encephalitic toxoplasmosis in a cat, **3480;** Efficacy of daraprim in toxoplasmosis, **3481;** Specificity of *Leucocytozoon,* **3482.**

DISEASES CAUSED BY VIRUSES AND RICKETTSIA, **3483-3526.**

Distribution in Mexico of vampire bats, **3483;** Behaviour of F. & M. disease virus in embryonated eggs, **3484;** The white mouse for F. & M. disease research, **3485;** Susceptibility of the hamster to F. & M. disease, **3486;** Effects of vital dyes upon F. & M. virus infection of g. pigs, **3487;** Aujeszky's disease in Italy, **3488;** Diagnosis of rabies, **3489;** Formation and persistence of antibodies in dogs vaccinated against rabies, **3490;** The chick embryo vaccine against fowl pox, **3491;** Chemotherapy of influenza viruses, **3492;** Significance of influenza virus variation for the development of an effective vaccine, **3493;** Histopathology of equine infectious anaemia, **3494;** The virus content of the tissues of rabbits infected with rinderpest, **3495;** The blood leucocytes in infectious malignant catarrh of the ox and rabbit, **3496;** The virus of contagious pustular dermatitis of sheep in the aetiology of "stinking lameness" in sheep, **3497;** Immunological studies on ovine enzootic abortion in young lambs, **3498;** Swine fever in Auckland, **3499;** C.f. antibodies in the serum of pigs immunized against swine fever, **3500;** Lapinized virus as a vaccine against swine fever, **3501;** Aerosol properties of lyophilized swine fever virus, **3502;** Canine vesicular dermatitis, **3503;** Infectious myelitis of cats, **3504;** The infected cell count method of titration of feline pneumonitis virus, **3505;** Prevention of myxomatosis in Italy, **3506;** Myxomatosis, **3507;** Immunization against myxomatosis, **3508;** Encephalomyelitis of mice, **3509;** Newcastle disease in turkeys, **3510;** Developmental defects in chick embryos following infection with N.D.V., **3511;** The haemolytic activity of

N.D.V., **3512;** The interaction of the large and small haemagglutinating components of N.D.V. with red cells, **3513;** N.D.V. from the pheasant and partridge, **3514;** Antigenic characteristics of Italian strains of N.D.V., **3515;** Effect of freezing on the immunizing activity of a Newcastle disease adsorbate vaccine, **3516;** Oral vaccination of fowls against N.D., **3517;** Infection of human beings with N.D.V., **3518;** P-Q type variation in infectious laryngotracheitis virus, **3519;** Reservoirs of psittacosis, **3520;** Titrations of the viruses of equine encephalomyelitis and Newcastle disease by tissue culture, **3521;** Assay of virus haemagglutinins, **3522;** Soviet nomenclature of viruses, **3523;** Heartwater immunization, **3524;** Q fever as a zoonosis, **3525;** Isolation of *R. burneti* from *Ixodes holocyclus*, **3526**.

IMMUNITY, **3527-3534.**

Influence of electrolytes on collodium-agglutination, **3527;** Haemagglutination and haemagglutination-inhibition reactions with tannic acid and protein-treated r.b.c., **3528;** The influence of a sustained monocytosis upon the antibody response in rabbits, **3529;** Rate of elimination of homologous globulins (including antibody) from the circulation, **3530;** Fate of homologous antibody in the rabbit, **3531;** Relationship between the serum proteins and the formol-gel in cattle, **3532;** Paper-electrophoretic examination of horse and ox serum, **3533;** Allergy and pathology, **3534**.

PARASITES IN RELATION TO DISEASE [ARTHROPODS], **3535-3541.**

Dipping with arsenic and benzene hexachloride against the sheep body louse, **3535;** The sheep blowfly problem, **3536** & **3537;** The family Gasterophilidae, with keys to adults and maggots, **3538;** Distribution of the paralysis tick, *Ixodes holocyclus*, **3539;** An arsenic resistant cattle tick in New South Wales. Its reaction to some insecticides, **3540;** Sensory physiology and behaviour of larvae of *Boophilus microplus*, **3541**.

PARASITES IN RELATION TO DISEASE [HELMINTHS], **3542-3567.**

Liver fluke in sheep and its seasonal incidence, **3542;** *Fasciola indica* n. sp. with observations on *F. hepatica* and *F. gigantica*, **3543;** Artificial immunity to *F. hepatica* in rabbits, **3544;** Broncho-pneumonia in ruminants caused by *Schistosoma bovis*, **3545;** *Schistosoma* infestation in cattle and the snail host *Bulinus abyssinicus*, **3546;** Sparganosis in feral pigs, **3547;** Surgical treatment of "gid", in sheep, **3548;** Antigenic properties of the contents of echinococcus cysts, **3549;** Treatment of *Strongyloides* in piglets with gentian violet, **3550;** An outbreak of trichinosis in Liverpool, **3551;** Trichinosis in Italy, **3552** & **3553;** Prevention of trichinosis by gamma irradiation of pork, **3554;** Control of swine kidney worms, **3555;** Preparation of antigen from *Bunostomum trigonocephalum*, **3556;** The vertical migration of infective larvae of strongyloids, **3557;** Effect of a subclinical worm-burden on the digestive efficiency of sheep, **3558;** Pathogenesis of *Trichostrongylus axei* in sheep on a low plane of nutrition, **3559;** The "spring rise" in worm-egg counts of sheep in Scotland, **3560;** Helminths of Scottish hill sheep, **3561;** Epidemiology of helminthosis in sheep in winter-rainfall regions of Australia, **3562;** Anaphylactic shock following the inj. of extracts of *Ascaris* in the horse, **3563;** Effects of anthelmintics and an antibiotic on larvae of *A. galli*, **3564;** Tryptophane and its relationship to ascarid infections, **3565;** *Ornithofilaria fallisensis* n. sp. from the duck, **3566;** Helminth parasites of goats, rabbits and g. pigs, **3567**.

SPONTANEOUS AND TRANSMISSIBLE NEOPLASMS AND LEUCAEMIAS [INCLUDING FOWL PARALYSIS], **3568-3572.**

Neoplasms in dogs, **3568;** Antagonism between Rous sarcoma and plasmodium infection in birds, **3569;** A registry of bird tumours, **3570;** The riddle of the mast cells, **3571;** Leucaemia in g. pigs, **2572**.

NUTRITIONAL AND METABOLIC DISORDERS, **3573-3611.**

Physiological considerations in rumen digestion, **3573;** Correlation between feed consumption and faecal flora in chicks, **3574;** The alfalfa factor and its relation to the liver and whey factors, **3575;** Why do cows and sheep bloat? **3576;** Experimental frothy bloat in cattle, **3577;** Growth and blood constituents of rats exposed to 94°F. for 72 hours, **3578;** The effect of intermittent administration of aureomycin to pigs, **3579;** The vitamin-sparing effect of antibiotics, **3580;** Antibiotics and reproduction of pigs, **3581;** Histological changes in skin of dogs in relation to dietary fat, **3582;** Nutritive value of buffalo-butter fat, **3583;** Spectrophotometric examination of buffalo's fat, **3584;** The influence of the ash content of the rumen ingesta on the hydrogen ion conc. in the bovine rumen, **3585;** Cation exchange in the gastro-intestinal tract, **3586** & **3587;** The effect of self-feeding salt-cotton-seed mixtures to cows, **3588;** Elemental sulphur and other preventives of enterotoxaemia in a lamb fattening ration, **3589;** The utilization of sulphate sulphur by the hen, **3590;** Anaemia in piglets associated with a copper deficiency, **3591;** The biological value of inorganic phosphates, **3592;** Urinary calculi in sheep, **3593;** Effect of phosphorus deficiency on metabolism of carotene and vitamin A by cows, **3594** & **3595;** Vitamin E and phosphorus in perosis in turkeys, **3596;** The effect of incipient vitamin A deficiency on reproduction in the rabbit, **3597** & **3598;** Muscular dystrophy of calves in Scotland, **3599;** The riboflavin requirement of the baby pig, **3600;** Rhythmic responses of chicks to injected thiamine, **3601;** Nutritional studies with the g. pig, **3602;** The diuretic action of vitamin C and its value in pathological retention of water, **3603;** Renal hyperparathyroidism (rubber jaw syndrome) in a dog, **3604;** Hypothyroidism in cattle and reproductive disorders, **3605;** Inhibition of glucose use in muscle ex-

tracts by lipoproteins, **3606;** Clin. tests for ketonuria, **3607;** Blood sugar and liver glycogen in ketosis of the ruminant, **3608;** Ketosis in milch cows, **3609;** The treatment of ketosis in cows by sodium acetate, **3610;** Treatment of ketosis in cows with methionine, **3611.**

DISEASES, GENERAL, **3612-3617.**

Ohio's animal disease reporting programme, **3612;** Diseases of lab. animals, **3613;** Symposium on skin diseases. Skin diseases, mycological origin. Skin diseases, bacterial and virus origin. Skin diseases transmissible between man and animal. Skin diseases, hormonal and unknown origin : alopecia in the dog associated with neoplasia of the testes. Skin diseases, allergic and anaphylactic origin. Skin diseases, neoplastic diseases, **3614;** Pathology of the Harderian gland of dogs, **3615;** Idiopathic anaemia in a bitch **3616;** Lethal effect of intragastric irradiation in the dog, **3617.**

POISONS AND POISONING, **3618-3629.**

"Chronic" copper poisoning of sheep, **3618;** Cirrhosis of the liver in sheep attributed to the ingestion of copper sulphate, **3619;** The effects of metals on the chick embryo, **3620;** Toxicity of galena and of lead sulphide for ruminants, **3621;** Effect of splenectomy and reticulo-endothelial blockade upon the anaemia of lead poisoning, **3622;** Corneal lesions in a dog following thallium poisoning, **3623;** Poisoning of horses with zinc phosphide, **3624;** Suspected poisoning in a dog by organo-phosphorus insecticides, **3625;** Inhibition of cholinesterases of the c.n.s. in paralysis in chickens, **3626;** The effects of D.D.T. upon nestling songbirds, **3627;** Pathology of bracken poisoning in cattle, **3628** & **3629.**

PHARMACOLOGY AND GENERAL THERAPEUTICS, **3630-3639.**

(For treatment of specific infections see under the appropriate disease)

Clin. observations on the use of methylpentyne-ol in dogs, **3630;** Conc. of *iso*-nicotinic acid hydrazide in the blood of cattle, **3631;** "Hibitane", a new antibacterial agent, **3632;** The action of a new antibiotic, trichomycin, upon *Tr. vaginalis, Candida albicans* and anaerobic bacteria, **3633;** Penicillin levels in cows' milk after intramammary infusion, **3634;** Distribution and excretion studies with S^{35}-labelled penicillin, **3635;** Reversal of aureomycin inhibition by riboflavin, **3636;** Chlorpromazine hydrochloride as a prenarcotic in the dog, **3637;** Balanced anaesthesia for the dog and cat, **3638;** Hibernation anaesthesia in surgery, **3639.**

PHYSIOLOGY, ANATOMY AND BIOCHEMISTRY, **3640-3665.**

Water and electrolyte balance, **3640;** Function of the sweat glands in European and zebu cattle, **3641;** Release of histamine by the histamine liberator compound 48/80 in cats, **3642;** Effects of hypophysectomy, castration and testosterone propionate therapy on phosphorus fractions in muscle, **3643;** Structural and chemical changes in connective tissue, **3644;** The mechanics of s/c inj., **3645;** Zinc content of the eye, **3646;** Milk ejection from mechanical stimulation of mammary myoepithelium, **3647;** Action of vitamin E on the mammary gland, **3648;** Serum alkaline phosphatase activity in European and zebu cattle, **3649;** Regeneration of blood corpuscles after bleeding, **3650;** E.C.G. of horses after work, **3651;** Rumenectomy in sheep, **3652;** Functions of the large intestine of the horse, **3653;** The pulmonary alveolar mucoid film and the pneumonocytes, **3654;** The permeability of lung parenchyma to particulate matter, **3655;** The penetration of light rays to the duck's brain *via* the orbital region, **3656;** Effect of magnesium and calcium ions on the release of acetylcholine, **3657;** Recent progress of hormone research, **3658;** Effects of growth hormone in dogs, **3659;** Influence of the thyroid on body temp., **3660;** Action of the parathyroid hormone, **3661;** Characteristics of the brain and ungulates, **3662;** Anatomy and histology of the cerebellum of the pig, **3663;** Anatomical investigation of the lymphatic system with reference to pathological applications, **3664;** The vascular arrangements of the nose, **3665.**

PUBLIC HEALTH, VETERINARY SERVICES AND VETERINARY EDUCATION, **3666-3670.**

A milk-borne outbreak due to *S. typhimurium*, **3666;** The use of antibiotics in preservation of beef, **3667;** The occurrence of salmonella in liquid egg, **3668;** Salmonella in duck eggs, **3669;** International Training Centre on manufacture of vet. virus vaccines, Izatnagar, U.P., **3670.**

REPRODUCTION AND REPRODUCTIVE DISORDERS, **3671-3687.**

The influence of sodium salicylate and sodium benzoate on sperm cells in bull semen, **3671;** The influence of whole blood, serum or plasma on bull semen, **3672;** Deep-freezing of semen, **3673;** The metabolic action of testosterone and related compounds, **3674;** The desoxyribonucleic acid content of the liver nuclei of pullets treated with gonadal hormones, **3675;** Relationship of oestrogen and progesterone in oestrous behaviour of the ewe, **3676;** Production of oestrus and ovulation in the ewe with progesterone and P.M.S., **3677;** Progesterone in infertility of cattle, **3678;** Infertility in cattle and sheep, **3679;** Incidence of shortened oestrous intervals in cows, **3680;** Retention of the foetal membranes in cattle after first pregnancy, **3681;** Foetal atrophy in the buffalo, **3682;** Abnormal development of hair and hoof of new-born calves, **3683;** Plurality of ova within the Graafian follicles of bitches with hereditary shortness of the tail, **3684;** Ocular associations of dappling (or merling) in the coat colour of dogs, **3685;** Mottled, a sex-modified lethal in the house mouse, **3686;** Chemical causes of teratology in animals, **3687.**

ZOOTECHNY, **3688-3701.**

The relationship of surface area to heat tolerance in Jerseys and Sindhi-Jersey cows, **3688;** Repeatability of an experimental heat tolerance test and the influence of season, **3689;** Influence of humidity on heat exchange and body temp. regulation in cattle, **3690;** The effect of shearing on the reaction of lambs to high ambient temp., **3691;** Calf-rearing, **3692** & **3693;** Animal production, and related problems, in New Zealand, **3694;** Husbandry and the incidence of disease in animals, **3695;** Losses in farm animals, **3696;** The attainment and maintenance of fitness in the racing greyhound, **3697;** G. pig husbandry, **3698;** A factor analysis of body measurements of dairy cows, **3699;** Alteration of daily gain, feed efficiency and carcass characteristics in beef cattle with male hormones, **3700;** Play in domestic cattle, **3701.**

TECHNIQUE AND APPARATUS, **3702-3705.**

Paper discs containing culture medium for the differentiation of bacteria, **3702;** Organic chelating agent in the demineralization of bone for histochemical study, **3703;** Effect of traces of copper on Hb determination. A potential source of error, **3704;** Contrast mediums in canine myelography, **3705.**

MISCELLANEOUS, **3706-3707.**

Splenectomy of bovine animals, **3706;** Venous cooling. A new method of cooling the bloodstream, **3707.**

REPORTS, **3708-3710.**

Australia. Commonwealth Scientific and Industrial Research Organization for 1952, **3708;** Union of S. Africa. Johannesburg. Director of Abattoir and Live Stock Market Department for 1953, **3709;** Sweden. Swedish Army Veterinary Service for 1949, **3710.**

BOOK REVIEWS, **3711-3725.**

Protein metabolism [Fischer], **3711;** Antibiotics [Pratt & Dufrenoy], **3712;** Antibiotics annual [Welch & Martí-Ibáñez], **3713;** Antibiotics [Robinson], **3714;** Chemotherapy of infections [Collier], **3715;** The complete herbal [Culpeper], **3716;** General physiology [Scheer], **3717;** Précis of physiology [Soula], **3718;** Practical methods in biochemistry [Koch & Hanke], **3719;** Advances in cancer research [Greenstein & Haddow], **3720;** Statistical method in biological assay [Finney], **3721;** Italian veterinary research institute. An account of their work [Anon], **3722;** Silage fermentation [Barnett], **3723;** National Manpower Council. A policy for scientific and professional manpower. A statement by the Council with facts and issues prepared by the research staff [Anon], **3724;** The Faber medical dictionary [Wakeley], **3725.**

BOOKS RECEIVED, p. 602.

INDEX TO AUTHORS

Ackert, J. E., 3564.
Adler, H. C., 3453.
Agostinelli, V., 3619.
Ainsworth, G. C., 3614.
Akün, R., 3460.
v. Albertini, A., 3534.
Alder, V. G., 3404.
Alexander, F., 3653.
Alexander, G. I., 3693.
Alicata, J. E., 3552, 3555.
Allcroft, R., 3605.
Allen, N. N., 3610.
Alwar, V. S., 3470.
Amino, E., 3633.
Ancel, P., 3687.
Anderson, E. O., 3405.
Anderson, R. C., 3566.
Anthony, W. B., 3649.
Armstrong, E. C., 3666.
Assenmacher, I., 3656.
Atwood, M. B., 3412.
Austin, L., 3626.
Austoni, M., page 602.

Bagdonas, V., 3428.
Bakerspigel, A., 3459.
Bakos, K., 3433.
Baldelli, B., 3501.
Baranger, P., 3569.
Barei, S., 3485.
Barisson Villares, J., 3641.
Barnard, W. G., 3524.
Barnes, J. M., page 602.
Barnett, A. J. G., 3723.
Barnum, D. A., 3431.
Bartels, E. D., 3661.
Bateman, J. K., 3697.
Batty, I., 3448.
Baumann, C. A., 3601.
Beeson, P. B., 3456.
van Bekkum, D. U., 3674.
Benazzi, P., 3490.
Bendixen, H. J., 3532.
Bennett, G. F., 3482.
Bennett, I. L., Jr., 3456.
Benoit, J., 3656.
Berman, A., 3672.
Berthet, L. A., 3641.
Bessis, M., page 602.
Bethell, F. H., 3554.
Bianchi, C., 3683.
Bird, H. R., 3590, 3601.
Blagbrough, H. P., 3627.
Blakemore, F., 3614.
Blattner, R. J., 3511.
Blaxland, J. D., 3458.
de Blieck, L., 3508.
Blore, I. C., 3428.
Blum, L., 3434.
Bogart, R., 3700.
Bohl, E. H., 3447.
Bohstedt, G., 3579.
Boley, L. E., 3589.
Bonfert, A., 3680.
Bornstein, J., 3606.
Borodenok, A. I., 3415.
Borst, J. G. G., 3640.
Bosgra, O., 3508.
Bretey, J., 3416.
Brickman, S., 3621.
Briggs, G. M., 3602.
Bringmann, G., 3479.
Brody, S., 3690.
Brooksbank, N. H., 3591.
Brown, D., page 602.
Brown, K. E., 3616.
Brownlee, A., 3701.
Brunner, J. R., 3577.
Buchner, P., page 602.
Burnside, J. E., 3579.
Burris, M. J., 3700.
Burt, A. W. A., 3699.

Camisani, V., 3485.
Campbell, J., 3659.
Caporale, G., 3525.
Carley, J. G., 3526.
Carmichael, J., 3614.
Carpenter, L. E., 3581.
Cason, J. L., 3585.
Cedervall, A., 3461.
Cessi, D., 3488.
Cheli, R., 3615.
Chilimoniuk, J., 3550.
Chute, H. L., 3467.
Ciaccio, G., 3487.
Cimenti, R., 3450.
Cohen, G., 3452.
Cohrs, P., 3449.
Coid, C. R., 3681.
Colby, R. W., 3588.
Cole, C. R., 3467.
Collier, H. O. J., 3715.
Common, R. H., 3675.
Congdon, C., 3572.
Connell, R., 3426.
Cook, R., 3613.
Cotchin, E., 3568.
Cravens, W. W., 3601.
Crofton, H. D., 3557.
Cross, B. A., 3647.
Culpeper, N., 3716.
Cushnie, G. H., 3628, 3629.

Dack, G. M., 3451.
Daniels, J. B., 3509.
Davey, J. B., 3685.
Davidson, I. W. F., 3659.
Davies, D. R., 3626.
Davies, G. E., 3632.
Davies, J. B. M., 3551.
Davies, S. F. M., 3477.
Davis, J. H., 3704.
Dawes, J. D. K., 3665.
Dawson, F. L. M., 3678.
Dayus, C. V., 3694.
Deatherage, F. E., 3667.
Dedić, K., 3484.
Deiana, S., 3475 3476, 3545.
Delitala, G., 3475, 3476.
Denton, C. A., 3590.
Dodd, F. H., 3406.
van Dorssen, C. A., 3411.
Doyle, T. M., 3420.
van Drimmelen, G. C., 3441.
Drinnon, V. P., 3469.
Dufrenoy, J., 3712.
Duncan, C. W., 3577.
Dunn, A. M., 3556, 3560, 3561.

Eberhagen, A., 3646.
Eddie, B., 3520.
Elek, P., 3497.
Ellerbrook, L. D., 3704.
El-Mohandis, M. M. E.-N., 3603.
Elsdon-Dew, R., 3474.
El-Shechy, A.-W., 3603.
Elvehjem, C. A., 3580.
Ercoli, N., 3487.
Eyles, D. E., 3469.

Fairer, J. G., 3639.
Fallis, A. M., 3482.
Fastier, L. B., 3521.
Faull, W. B., 3432, 3625.
Ferguson, L. C., 3447.
Filer, M. K., 3569.
Filmer, J. F., 3679.
Finney, D. J., 3721.
Fischer, R. B., 3711.
Fisher, H., 3575.
Fitzgerald, R. J., 3462.
Fletcher, J. L., 3691.
Foggie, A., 3498.
Fohrman, M. H., 3688, 3689.
Forsyth, B. A., 3547.
Foster, J. W., 3636.
Fox, B. W., 3617.
Francis, J., 3632.
Fraser, A. S., 3686.
Freiman, D. G., 3703.
Fretzdorff, A.-M., 3646.
Friant, M., 3662.
Fromm, G., 3680.
Fuller, C. J., 3457.
Funes, E. S., 3486.
Futrell, M. F., 3649.

Gagliardi, G., 3517.
Gallup, W. D., 3594, 3595.
Garrigus, U. S., 3589.
Gasparini, G., 3487.
Gates, D. W., 3706.
Geddes, H. J., 3692.
Gentile, G., 3549.
Gibson, T. E., 3559.
Giglietti, A., 3427.
Gilbert, S. J., 3435.
Gillespie, W. A., 3404.
Gillis, M. B., 3592.
Girard, K. F., 3529.
de Girolamo, A., 3584.
Goldberg, H. S., 3667.
Goldhaft, A. D., 3570.
Gomberg, H. J., 3554.
Gordon, H. McL., 3547, 3562.
Gordon, R. F., 3436.
Gould, S. E., 3554.
Granoff, A., 3512, 3513.
Gray, D. F., 3463.
Gray, J. E., 3510.
Greenstein, J. P., 3720, page 602.
Grini, O., 3429.
Grootenhuis, G., 3673.
Gross, J., 3644.
Gross, P., 3655.
Grummer, R. H., 3579.
Gualtieri, M., 3443.
Guarini, G., 3500.
Gullet, V. N., 3405.
Guzman, M. A., 3578.

Haag, F., 3650.
Haddow, A., 3720.
Hafez, E. S. E., 3682.
Hahn, E., 3437.
Hale, H. H., 3405.
Hall, L. W., 3638.
Ham, W. E., 3593.
Hamilton, P. K., 3446.
Hammond, J., page 602.
Hanke, M. E., 3719.
Hansen, A. E., 3582.
Hansen, M. F., 3564.
Hansen, R. G., 3575.
Hardenbrook, H., Jr., 3589.
Harper, A. E., 3580.
Hauser, M. M., 3574.
Hausler, H. R., 3659.
Hawksley, M. B., 3432.
Hay, J. R., 3612.
Hays, R. L., 3597, 3598.
Head, K. W., 3614.
Henle, W., 3512, 3513.
Hepple, J. R., 3448.
Herdan, G., 3404.
Heuser, G. F., 3592.
Hewitt, H. B., 3645.
Higgs, T. M., 3406.
Hignett, S. L., 3605.
Hoefer, J. A., 3600.
Hoerlein, B. F., 3705.
Hollaender, A., page 602.
Holman, H. H., 3616.
Holz, J., 3479.
Holzworth, J., 3480.
Hoogendoorn, H., 3508.
Howell, A., Jr., 3462.
Huang, J. S., 3505.
Huffman, C. F., 3577.
Hughes, L. E., 3696.
Humphrey, J. H., 3530, 3531.
Hutter, O. F., 3657.

Ioppolo, E., 3472.
Ivy, A. C., 3617.

Jacotot, H., 3445.
Jennings, F. W., 3544.
Jennings, S., 3503, 3614.
Ježić, J., 3455.
Johnston, R. L., 3600.
Johnstone, I. L., 3537.
Jones, F. E., 3469.
Jumper, J. R., 3469.

Kammlade, W. G., 3589.
Kare, M. R., 3643.
Karib, A. A., 3465.
Karnofsky, D. A., 3620.
Kassenaar, A. A. H., 3674.
Katiyar, R. D., 3698.
Kenawy, M. R., 3603.
Kendall, K. A., 3597, 3598.
Kendall, S. B., 3477.
Kershaw, W. E., 3551.
Ketz, H.-A., 3663.
Kibler, H. H., 3690.
King, J. O. L., 3695.
Kirk, R., page 602.
Kirsner, J. B., 3451.
Kleineberger-Nobel, E., 3466.
Koch, F. C., 3719.
Kostial, K., 3657.
Krahl, M. E., 3606.
Küst, D., page 602.
Kunkel, H. O., 3649.

Lachowicz, S., 3548.
Lamming, G. E., 3597, 3598.
Landgren, S., 3651.
Langkamp, 3425.
Larson, N., 3581.
Lecomte, M., 3611.
Lederberg, J., 3440.
Lee, D. H. K., 3688, 3689.
Legg, J., 3540.
Lepow, I. H., 3434.
Levine, S., 3522.
Lindley, C. E., 3593.
Lister, J., 3607.
Littman, A., 3617.
Lloyd-Thomas, H. G. L., 3586, 3587.
Loda, P., 3488.
Lorenz, E., 3572.
Loring, H. S., page 602.
Lovell, R., 3614.
Luck, J. M., page 602.
Luecke, R. W., 3600.

McDiarmid, A., 3681.
McDowell, R. E., 3688, 3689.
McFarlane, A. S., 3530, 3531.
McGaughey, C. A., 3504.
Machlin, L. J., 3590.
Mackinney, G., page 602.
Mackintosh, G. M., 3560, 3561.
MacLeod, P., 3405.
Macklin, C. C., 3654.
McSherry, B. J., 3604.
Magra, M., 3633.
Manca, F., 3439.
Manocchio, I., 3417.
Mantovani, A., 3490.
Manuel, S., 3656.
Maqsood, M., 3660.
Markowitz, J., page 602.
Marks, J., 3419.
Markson, L. M., 3458.
Marras, G., 3439.
Martí-Ibánez, F., 3713.
Martin, A. R., 3632.
Martin, C. A., 3454.
Mathews, J., 3502.
Matthews, C. A., 3689.
Maw, W. A., 3675.
Medina, G., 3412.
Meyer, J., 3418.
Meyer, K. F., 3520.
Meyn, A., 3413.
Miller, E. R., 3600.
Miller, W. J., 3610.
Mirri, A., 3525.
Mitchell, R. T., 3627.
Monson, W. J., 3580.
Morris, M. L., 3573.
Moser, K., 3438.
Motzok, I., 3596.
Muggleton, P. W., 3634.
Mulligan, W., 3544.
Munroe, J. S., 3659.
Mura, D., 3439.
Murdock, C. R., 3668.
Murray, E. G. D., 3529.

Naftalin, J. M., 3628, 3629.
Nai, D. D., 3442.
Nakabayasi, T., 3473.
Narayana Rao, M., 3583.
Nardelli, L., 3485.
Nash, J., 3607.
Neave, F. K., 3406.
Nègre, L., 3416.
Nichols, R. E., 3576.
Nieć, L., 3624.
Nielsen, S. W., 3604.
Nilsson, A., 3433.
Nisman, B., 3452.
Norris, L. C., 3592.
Norton, R., 3666.

Ogilvie, D. D., 3618.
Ohder, H., 3489.
Oláh, P., 3497.
Oliver, A. W., 3700.
Oliver, J., 3406.
Olson, C., Jr., 3428.
Ormsbee, R., 3408.
Osborne, H. G., 3542.
Owens, F. J., 3451.

Pappenheimer, A. M., 3509.
Parnas, J., 3523.
Parnell, I. W., 3560, 3561.
Paterson, H. E., 3538.
Pattison, I. H., 3407.
Pauluzzi, L., 3403, 3450.
Pearson, J. C., 3482.
Pearson, P. B., 3590.
Peck, H. A., 3510.
Pedini, B., 3631.
Pellegrini, D., 3546.
Pepper, W. F., 3574, 3596.
Perrott, J. W., 3664.
Persaud, B. R. B., 3564.
Petrillo, R. L., 3442.
Phillips, P. H., 3579.
Phillips, R., 3696.
Phillips, W. E. J., 3675.
Piana, C., 3648, 3652.
Pillemer, L., 3434.
Pincus, G., 3658.
Pinkiewicz, E., 3550.
Pirrie, R., 3622.
Pittillo, R. F., 3636.
Placida, L., 3516.
Plastridge, W. N., 3405.
Plowright, W., 3496.
Pope, J. H., 3526.
Potel, K., 3494.
Powers, T. E., 3447.
Pozzi, L., 3409.
Pratt, R., 3712.
Pritchard, M. M. L., 3665.
Priestley, F. W., 3465.
Puck, T. T., 3522.
Pulsford, M. F., 3519.

Quesada, A., 3515.

Ramanujachari, G., 3470.
Ramnani, D. R., 3491.
Ranquini, D. J. H., 3471.
Rao, S. B. V., 3491.
Rayski, C., 3561.
Reid, G. R., 3691.
Reid, M. E., 3602.
Rewell, R. E., 3614.
Rhodes, R. A., 3580.
Ricci, M., 3552, 3553.
Richardson, S., 3509.
Ridgway, L. P., 3620.
Riedel, B. B., 3565.
Riggs, J. K., 3588.
Riley, J. F., 3571.
Rivasseau, D., 3563.
Rivasseau, P., 3563.
Rizzu, R., 3439.
Robbins, M. L., 3492.
Roberts, F. H. S., 3539.
Roberts, O. J., 3478.
Robertson, G. G., 3511.
Robinson, F. A., 3714.
Robinson, M., 3547.
Robinson, M. C., 3709.
Robinson, T. J., 3676, 3677.
Rohayem, H. K. E.-D., 3603.
Rollins, C. L., 3428.
Romagnoli, A., 3444.
Rosati, T., 3525.
Rose, F. L., 3632.
Ross, D. N., 3707.
Ross, E. J., 3586.
Ross, O. B., 3595.
Ruby, E. S., 3585.
Rutqvist, L., 3651.
Ryan, A. F., 3536.

Saba, B., 3427.
Sagik, B. P., 3522.
St. Hill, C. A., 3551.
Salisbury, G. W., 3597, 3598.
Salk, J. E., 3493.
Sampson, J., 3603.
Santero, G., 3485.
Santucci, J., 3516.
Sarles, W. B., 3580.
Sartory, R., 3418.
Scarnell, J., 3605.
Schaetz, F., page 602.
Schalm, O. W., 3408.
Scheer, B. T., 3717.
Schierholz, H., 3410.
Schindler, H., 3671.
Schneider, B. H., 3593.
Schoolman, H. M., 3617.
Schoop, G., 3438, 3507, 3518.
Schulte, F., 3449.
Schwarte, L. H., 3502.
Schweizer, R., 3637.
Scott, G. R., 3495.
Scott, H. M., 3575.
Scrimshaw, N. S., 3578.
Sells, L. V., 3588.
Semple, A. B., 3551.
Senda, T., 3633.
Shanahan, G. J., 3535, 3540
Sharman, G. A. M., 3599.
Simpkin, D., 3406.
Sinclair, J. G., 3582.
Sippel, W. L., 3412.
Slinger, S. J., 3574, 3596.
Smith, A., 3639.
Smith, A. N., 3642.
Smith, C. K., 3577.
Smith, E. C., page 602.
Smith, I. M., 3407.
Smith, P. K., 3492.
Snoeyenbos, G. H., 3510.
Snyder, M. L., 3702.
Sobey, S., 3686.
Sorensen, D. K., 3610.
Sorsby, A., 3685.
Soula, L.-C., 3718.
Spears, H. N., 3424.
Spedding, C. R. W., 3558.
Spencer, A. G., 3586, 3587.
Spier, C. C., 3686.
Sprehn, C., 3567.
Squibb, R. L., 3578.
Stallcup, O. T., 3585.
Stavitsky, A. B., 3528.
Steiniger, F., 3437.
Stocker, B. A. D., 3440.
Stöckl, W., 3532.
Stokes, D. K., Jr., 3649.
Stuart, P., 3423.
Sugiyama, H., 3451.
Summers, W. A., 3481.
Swain, G., 3632.
Szabó Szücs, J., 3497.
Szczudłowska, M., 3623.
Szulmajster, J., 3452.

Takemoto, K. K., 3492.
Tanner, J. M., 3699.
Tarlatzis, K. V., 3609.
Taylor, A. W., 3421, 3422.
Taylor, W. M. W., 3630.
Taysom, E. D., 3593.
Thakral, B. M., 3491.
Thal, E., 3433.
Thiéry, G., 3684.
Thomas, O. O., 3594, 3595.
Thompson, C. H., Jr., 3430.
Thomson, A., 3448.
Thomson, W. M., 3414.
Thurston, J. P., 3468.
Tilgner, K., 3410.
Torlone, V., 3514.
Touillier, J., 3418.
Tucker, J., 3436.
Turner, A. W., 3463.
Tyznik, W. J., 3610.

Ullberg, S., 3635.
Urquhart, G. M., 3544.
Uvarov, O., 3634.

Vallée, A., 3445.
VanEtten, R. C., 3627.
Varma, A. K., 3543.
Villa, R. B., 3483.
Vobes, D. H., 3607.
Vocino, G., 3443.
Volcani, R., 3671, 3672.

Wagner, V., 3527.
Waibel, P. E., 3601.
Wakeley, C., 3725.
Wallace, G. V., 3499.
Wanntorp, H., 3621.
Watt, I. G., 3499.
Weaver, B. M. Q., 3638.
Weiser, H. H., 3667.
Weiss, E., 3505.
Weitzel, G., 3646.
Welch, H., 3713.
Westrick, M., 3655.
White, R. W., 3464.
Whitehair, C. K., 3594, 3595.
Whitfield, I. C., page 602.
Wiese, H. F., 3582.
Wilkinson, J. S., 3625.
Wilkinson, P. R., 3541.
Williamson, A. P., 3511.
Winje, M. E., 3580.
Wright, P., 3535.
Yokouti, E., 3633.
Zacherl, M. K., 3533.
Zadura, J., 3624.
Zinder, N. D., 3440.
Zirkle, R. E., page 602.
Zumpt, F., 3538.

ERRATUM

V.B. **24**, absts. 2287, 2609, 2713, 2762, 2776, 2777, 2784 and 3053. After *Proc. VIth Congr. int. Microbiol., Rome*, 1953., please insert: (*Riassunti delle Communicazioni*).

Ibid; abst. 2707. Lines 5 and 6 of abst. should read: "During this period over 100,000 dogs were vaccinated and large numbers of stray dogs were shot, for example nearly 6,000 in Kuala Lumpur alone."

ABBREVIATIONS OF NAMES OF PUBLICATIONS

The abbreviations used in *Index Veterinarius* and *The Veterinary Bulletin* are those of the *World List of Scientific Periodicals* published in the years 1900-1950, 3rd Edit. (1952). London : Butterworths Scientific Publications.

The Executive Council of the Commonwealth Agricultural Bureaux is a signatory to the Fair Copying Declaration, details of which can be obtained from the Royal Society, Burlington House, London, W.1.

Bulletins on disease subjects written for farmers and "popular" articles of a similar nature are not included in the *Veterinary Bulletin*. Those of a sufficiently important nature are, however, included in *Index Veterinarius*; so also are certain review articles, presidential addresses, congress proceedings, etc., where the title conveys as much information as could be given in an abstract of a few lines. For information of this nature, readers of the *Veterinary Bulletin* are referred to *Index Veterinarius*, where titles of all publications indexed by the bureau are fully cross-referenced.

A list of annotations and reviews, classified according to subject, is now given in *Index Veterinarius*, being inserted at the end of each number. Such papers will not necessarily be dealt with in the *Veterinary Bulletin*.

The Editor will be glad to receive publications relating to Veterinary Science and cognate subjects in order that they may be dealt with in the *Veterinary Bulletin*.

Reports of Departments, Special Reports, reprints, etc., etc., should be sent as soon as they are issued.

Books for Review.

The Editor will be glad to receive books for review in the *Veterinary Bulletin*.